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Phila. Exposition
Report of Commr of Educ.
on the educational exhibit 1876.

University of Michigan

1837
ARTES
VERITAS
SCIENTIA
LIBRARY OF THE
UNIVERSITY OF MICHIGAN

Michigan. State board of centennial managers
= 1876.

REPORT

OF THE

COMMISSIONER OF EDUCATION

17/13 [illegible]

ON THE

EDUCATIONAL EXHIBIT

AT THE

CENTENNIAL EXPOSITION,

HELD IN

PHILADELPHIA, 1876.

PUBLISHED BY AUTHORITY.

LANSING:
W. S. GEORGE & CO., STATE PRINTERS AND BINDERS.
1877.

REPORT.

Rec'd 2-21-39

To Hon. Charles M. Croswell, *Governor of the State of Michigan:*

I have the honor to transmit herewith my General Report on the Educational Exhibit at the Centennial Exposition, held at Philadelphia in 1876.

Very respectfully,
D. C. JACOKES,
Commissioner of Education.

Pontiac, Jan. 15, 1877.

I.—PRELIMINARY.

The International Exposition at Philadelphia, which opened so auspiciously and which has just been brought to a happy conclusion, has furnished lessons of the profoundest importance to every American citizen; but these lessons will lose half their value if they are not set forth with all possible clearness, and brought within reach of every intelligent lover of his country. In this Congress of Nations, American civilization, the net result of a hundred years' progress, has been brought into rigorous comparison and contrast with the highest types of existing civilizations. If, in some points, we are justified in feeling a superiority, we should be inspired with fresh hope, fresh courage, and should feel greater confidence in the genius of our institutions; while if, in other points, we have been shown our inferiority, we should devote ourselves with all earnestness to the work of improvement.

The results of this great Exposition are not only instructive to the nation at large, but each commonwealth has its own special lessons to ponder. Michigan has been brought face to face, not only with the States and nations of the Old World, but the sister States of the Republic. She has been judged both by strangers and by her kindred; not one phase of her civilization has been subjected to analysis and criticism, but many; not alone her industrial resources, her material progress, but the inner life of her people as revealed by her religious, educational, and charitable institutions. To what extent and in what manner was Michigan represented in this higher phase of her civilization? What were the judgments pronounced in her favor? What are the lessons she should be taught? To answer in some measure these questions of grave importance is the purpose of this report.

In September, 1875, I received a letter from Governor Bagley, asking me to confer with him immediately on important business.

In response to this request, I called on the Governor at his office in Detroit, and learned from him the general nature of the task which he wished to assign me. I was unable to decide so grave a matter without deliberation. While I had leisure which I might devote to such a work, and while the work itself was wholly congenial to my habits and tastes, I hesitated to assume such responsibilities while ignorant of the amount of coöperation which I should receive from the school authorities of the State. With a promise to give the matter my earnest consideration, I at once visited prominent teachers and friends of education in whose judgment I had confidence, with a view to ascertain the state of public feeling on the subject and the amount of aid which would be rendered me. Convinced by these interviews of the practicability of the enterprise, even at that late hour, I notified His Excellency of my acceptance of the post assigned me, and at once began the work of preparation. My first purpose was to enlist the sympathy and aid of the higher institutions of learning, and to collect from them such information as would exhibit the kind of provision which Michigan had made for the higher culture of her people.

For a better understanding of the situation, it is necessary to note the fact that, at the time of my appointment, no plan whatever had been formed for the prosecution of my work. To carry into execution a clearly drawn scheme of work would have been easy, but to devise a plan whereby the right kind of information could be collected, tabulated, and presented in an easily accessible shape, was a task of no slight difficulty. This was evidently the starting point and the key to success, and to this work I directed my first effort. Preparatory to my visit to the colleges and other higher educational institutions, I prepared the following circular for the purposes above mentioned:

INTERNATIONAL EXHIBITION, 1876.

CIRCULAR ON BEHALF OF MICHIGAN STATE CENTENNIAL BOARD OF MANAGERS.

The following will indicate the information desired to illustrate the history of Colleges and Universities of Michigan, for the International Centennial Exhibition to be held in Philadelphia, 1876. This information is to be given in as concise a manner as possible.

UNIVERSITIES AND COLLEGES.

1. Name; reasons for adoption, if any.
2. Charter, or act of incorporation; in what statute may it be found, name, vol., and page.
3. Date of the act, or other instrument.
4. Names and titles of first corporators.
5. The qualifications required for such officers, if any.
6. Term of service.
7. Mode of their election or appointment.
8. What relation does the institution hold to the State, if any.
9. What relation to religious societies, if any.
10. What relation to the common school system, if any.
11. What relation to any local or municipal control.
12. If under full or partial control of State, local, municipal, or religious bodies, etc., mention such relation.
13. Location of the institution, and by what authority.
14. Original grants of whatever kind, for revenue, whether for special or general purposes, and from what source, and how much is annually received for the support of the institution.
15. Degrees or other honors that may be conferred.
16. If any modifications of charter, state their character and reference to the authorities where they may be found.
17. Site; particular description of it, and the facilities for reaching it; cities and villages near it.

18. Buildings; a general statement of the plans, location, number, name, cost or probable value, and uses of the principal buildings used by the institution.
19. Objects proposed by the founders, and the result.
20. Plan of education and course of study.
    (1). Requirements for admission to the regular course.
    (2). State the organization of the faculty.
    (3). Studies required in a regular course.
    (4). Studies in any other than the regular course.
    (5). Privileges of selection allowed.
    (6). Degrees conferred at the end of each course.
    (7). Honorary degrees; certificates of attainment to those who do not pursue the full course.
    (8). State any changes made in the studies at any time, or new branches introduced or discontinued.
21. Religious influences.
    (1). Is there a separate chaplain; to what denomination does he belong, and how selected; are any denominational forms used in chapel services; is attendance at chapel obligatory or optional; if religious influences are regarded as an essential feature in collegiate education, state them concisely, and describe their application.
22. College societies.
    (1). Literary societies.
        (a). Name.
        (b). When founded.
        (c). Volumes in library.
        (d). Initiation fee.
        (e). Annual dues.
        (f). Present number.
        (g). Total from beginning.
    (2). Societies for religious and moral improvement.
        (a). Name and object.
        (b). When founded.
        (c). Annual dues.
        (d). Present number.
        (e). Total from beginning.
    (3). Secret societies, usually designated by Greek letters, with or without stated or publicly known places of meeting.
        (a). Name of society.
        (b). When founded in the institution reporting.
        (c). Designation of Chapter.
        (d). Present number.
        (e). Total from beginning.
    (4). Clubs and associations for recreation and physical training.
        (a). Name.
        (b). Object.
        (c). When formed.
        (d). Present membership.
    (5). Other societies or associations of undergraduates.
        (a). Name.
        (b). Object.
        (c). When formed.
        (d). Present membership.
    (6). Honorary societies, to which students are eligible at the completion of their college course, or when reaching an advanced class, under established rules as to scholarship and attainment.
        (a). Name.
        (b). When established in college reporting.
        (c). Designation of Chapter.
        (d). Total number elected from the beginning.
    (7). Alumni association.
        (a). Principal association.
        (b). When organized.
        (c). Present number of members.
    (8). Branches, if any.
        (a). When organized.

23. List of graduates; a triennial catalogue, with supplementary additions to 1876, will give the proper information.

24. Bibliography of college literature.

25. Post-graduate studies.
 (a). What facilities are provided for such a course.
 (b). What number annually pursue this course.
 (c). Total number from the beginning.

26. Professional schools.
 (a). Law.
 (b). Medicine.
 (c). Theology.
 (d). Particular sciences.
 Give the principal facts concerning organization, objects, plans, methods, and facilities for instruction, etc.

27. Libraries, reading rooms, cabinets, museums, art galleries; these may be concisely described, with brief account of their more important features, with notices of their patrons and benefactors.

28. Laboratories (Chemical).
 (a). Name of institution reporting.
 (b). Name of the laboratory.
 (c). Date of establishment.
 (d). Capital invested in separate buildings, $..............
  " " in apparatus and fixtures, $..............
  " " in chemicals and other stock, $..............
 (e). Endowment funds; capital, $..............
 (f). Annual income from invested funds, $..............
 (g). Income from other sources, and annual amount received, $..............
 (h). Size of rooms, the length, breadth, height of ceiling, capacity for seating, in lecture room; if a separate building is used, plans and views are requested.
 (i). General or special objects of the laboratory.
 (j). Under whose charge is instruction given.
 (k). Names of former instructors, and notices concerning them.
 (l). Number of students now attending.
 (m). Total numbers from beginning.
 (n). Notice of any researches, or contributions to science made by the laboratory.
 (o). Historical notices and remarks.

29. Observatories, for astronomical, magnetic, or meteorological observations.
 (a). Name of college or other institution reporting.
 (b). Name of observatory.
 (c). Origin of the name, if applied in honor of a patron, with some notice of such person.
 (d). Name of the director of the observatory.
 (e). Names and special departments of assistants.
 (f). Date of incorporation, ...; of organization, ...; of opening and use, ...
 (g). Location and description of building; extent of grounds.
 (h). Cost of grounds, $........; of buildings, $........; of instruments, $.......
 (i). Origin of the funds with which the observatory was built and equipped.
 (j). Salaries, $..............; current expenses, not including salaries and publications, $..............
 (k). Principal instruments.

(l). Name and Description.	Maker.	Date.	Cost.	Size and Remarks.

 (m). Subjects of regular observations, or principal work of the observatory.
 (n). Does the observatory furnish time for railroad, or to the public; if so, mention the manner, intervals, and expense, and other facts concerning this service.
 (o). Of magnetic and meteorological observations, the peculiar subjects of record, times of observation, manner of publication, etc.
 (p). Specify any series of experimental or other observations, or researches undertaken, or in progress, and such results as may be of interest.

(q). List of published reports of observations, etc., with dates, extent, form, etc., and a reference to the place where they may be found.

(r). List of directors from the beginning.

Name.	Service Began.	Service Ended.	Mode of Ending Service.

(s). Historical and other statements.

30. Educational work done by college instructors other than by direct teaching in the class or lecture room.

(1). A list of original works.
(2). A list of translations of foreign works.
(3). A list of edited works.
(4). A list of all educational appliances.

31. Preparatory department, if any.

(1). Legal name of school.
(2). Date of incorporation.
(3). Date of organization.
(4). References to statutes or other authorities where rights and privileges are defined.
(5). Location, and statement as to whether in college buildings or on separate premises.
(6). Management; whether by a board of trustees or other officers, with their designation, number, terms of service, and mode of election, and any qualifications required concerning them.
(7). Acres of land attached, ...; its estimated value, not including buildings, $..............
(8). Value of buildings, $..............; of separate library, $..............; of separate apparatus, $..............; of cabinets, $..............; volumes in library, $..............
(9). Grants and endowments heretofore received.
  (a). From what source.
  (b). Date.
  (c). Amount.
(10). Scholarships; their number and conditions.
(11). Prizes; their number, value, and conditions.
(12). Literary and other societies; their names, object, date of formation, number of members, and any facts concerning them of public interest.
(13). Instructors; number of separate instructors, men, women; number of instructors connected with the college, men, women; terms in the year, weeks in a term.
(14). Admission; requirements as to age, scholarship, etc.
(15). Course of study.
(16). Expenses; tuition per term, $..............; board per week, $..............; contingent expenses per term.
(17). Attendance during the year.
  (a). Males.
  (b). Females.
  (c). Day scholars.
  (d). Boarding scholars.
  (e). Preparing for classical course.
  (f). Preparing for scientific course.
  (g). Not intending to graduate.
(18). Historical notes and remarks, tabular statements of former attendance, and any other information concerning the school, may here be given.

All reports in answer to this may be sent to my address in Pontiac, Mich.

D. C. JACOKES,
For Michigan State Centennial Board of Managers.

I visited Adrian College, Hillsdale College, Kalamazoo College, Hope College, Albion College, Olivet College, Michigan University, the State Normal School, the Agricultural College, and also the State Public School, State Pristo be no issue, I was asked if Michigan had adopted a plan of representation. I replied that, in my capacity as the Commissioner of Education for that State, I had drawn a plan, and that I had come to Philadelphia to ascertain whether it would be acceptable to the authorities in charge. The plan for the exhibit of graded school work was then explained in detail, and its characteristic feature—that of embodying the information in volumes compact and accessible—was *welcomed* with the most evident satisfaction; and I was assured that this general plan of exhibit would be adopted for general use. On my return to Detroit, a few days later, I found fresh instructions to exhibitors, which embodied what may be justly called the Michigan plan of representation.

As soon as possible after my return from Philadelphia, the Centennial Committee was requested to meet Governor Bagley and myself, for the purpose of drawing up a final plan for our educational exhibit. This meeting took place Jan. 15, 1876, in the Governor's office in Detroit. After considerable informal discussion, in which it was found difficult to agree on a plan that was mutually satisfactory, Prof. Payne was instructed to prepare a plan, which, with the approval of the Governor and myself, was to be final. This work was completed on the 17th; was approved by the Governor, Prof. Sill, and myself; was printed on the 18th, and at once dispatched to every school in the State. This plan was accompanied by the following letter from Governor Bagley:

CENTENNIAL CIRCULAR.

Office of the State Board of Centennial Managers,
Detroit, January 17th, 1876.

To the Boards of Education, School Superintendents, and Principals:

In transmitting the enclosed circular, the Board of Centennial Commissioners feel that they would be neglectful of their duty to the State should they fail to ask the *hearty*, *immediate*, and *active* coöperation of all who are engaged in educational work in securing a good representation of what Michigan has done and is doing in this direction. We boast at all times and in all places of our State as being foremost in the cause of general education. Let us show by our works that our boasting is not empty words, signifying nothing. The world is to visit the Centennial Exposition not alone for curiosity and sight-seeing, but also to learn; and whilst works of art and mechanism, of show and use, will attract the eye of careless visitors, the work that creates good citizens, and builds states and nations, will attract the educated and thoughtful mind. We plead, therefore, that the educational work of Michigan be thoroughly presented; we ask that, putting aside so far as is possible other duties, you at once take hold of the work and do it, and do it thoroughly and well. As stated in the circular, the work after being shown at the Centennial is to be placed in an alcove in the State Library of the New Capitol. What an exhibition we shall thus have in our own archives of the work of to-day! What a spirit of emulation and enthusiasm will be built up in future years by the study of the work of '76.

To School Boards:

The work asked for will need the time of your superintendents and teachers; this you must give freely. So, too, the work will take some money for photographing maps, stationery, etc. No appropriation has been made to cover this cost, and the money must either come from the school fund in your care, or by voluntary contributions from your citizens. We feel, however, that we shall not ask in vain when we ask of the school officers of our good State either time or money for such a cause.

The portfolios mentioned in the circular will be furnished by this Board.

Very respectfully,
John J. Bagley,
Merrill I. Mills,
Jonathan J. Woodman,
Jay A. Hubbell,
Henry Fralick.

D. C. Jacokes, *Agent of the Board of Educational Dep't.*
D. B. Briggs, *Sup't of Public Instruction.*
F. W. Noble, *Secretary.*

MICHIGAN GRADED SCHOOLS AT THE CENTENNIAL EXHIBITION.

SUGGESTIONS RESPECTING THE PREPARATION OF MATERIAL.

INTRODUCTION.

The MICHIGAN STATE CENTENNIAL BOARD OF MANAGERS has appointed D. C. Jacokes, D. D., of Pontiac, to superintend the representation of the educational system of Michigan, at the International Centennial Exhibition at Philadelphia, which will open May 10, 1876.

At a late meeting of the State Teachers' Association, at Grand Rapids, a committee of five was appointed to assist Dr. Jacokes in the prosecution of his work.

On Saturday, January 15th, His Honor the Governor invited several members of the committee to confer with Dr. Jacokes in the preparation of a definite plan of action, and the circular which follows is the result of their deliberation.

1776 INTERNATIONAL CENTENNIAL EXHIBITION. 1876

CIRCULAR ON BEHALF OF THE MICHIGAN STATE CENTENNIAL BOARD OF MANAGERS, ADDRESSED TO THE BOARDS OF EDUCATION, SUPERINTENDENTS AND PRINCIPALS OF GRADED SCHOOLS:

It is very desirable that the Public School system of Michigan should be fairly represented at the coming International Centennial Exhibition. Perhaps no other State or country in the world has a system of free public instruction so comprehensive and complete, conducting the pupil by easy stages through the Primary and Secondary Schools, up to and through the State University. An epitome of our school system below the University may be seen in the graded schools of our cities and larger villages, and it is particularly desirable that these schools be adequately represented at Philadelphia.

Neighboring States are pushing forward this work with great enthusiasm, but up to this time Michigan has done nothing in this direction. Though the time which now remains for preparation is short, we are confident that a prompt and united effort on the part of Boards of Education, Superintendents, and Principals, will enable Michigan to maintain an honorable rank among the States and Nations whose educational systems are to pass in review before the eyes of the world.

Space ten by twenty-six feet has been assigned to the educational exhibit of this State. Shall this space remain unoccupied and rebuke us for our apathy? Shall it be meagerly furnished, and, by comparison, establish our inferiority? Or shall it be generously supplied with productions which hundreds of our schools can readily furnish, and which will exhibit the organization of our educational system, its services, and the quality of the results actually secured?

The short time which actually remains before the opening of the Exhibition forbids a very elaborate scheme of representation; and those who have had this matter more immediately in charge have attempted to draw up a simple and definite plan which all schools may adopt, and which will enable examiners to comprehend the essential features of our system.

I.—PHOTOGRAPHS OR ENGRAVINGS OF SCHOOL BUILDINGS AND GROUNDS, LABORATORIES, LIBRARIES, SCHOOL-ROOMS, ETC.

Many schools already have engravings of their buildings. These may be mounted and framed to be hung in the place of exhibition, or they may be included in the bound volume to be described below.

Plans and elevations of buildings in the possession of boards may be reduced to the required dimensions and contributed to illustrate school architecture. In all cases where it can be done, and especially where there are no engravings or plans as above described, it is very desirable that photographic views be taken, not only of buildings, but of school-rooms as they appear when occupied by pupils and teachers. Material contributed under this head will be invaluable, and a general compliance with this recommendation will of itself go far towards a gratifying exhibit of Michigan schools.

The following rules will be observed in the preparation of these views and plans:

1. For wall decoration they may be of any convenient size, separately framed, or several may be mounted together, forming a map or chart.

2. For exhibition in portfolios or in bound volumes, the size of these views should not be larger than that known to photographers as 4x4 (6¼ by 8½ inches).

3. Views and plans should be marked with the names and dimensions of building, seating capacity, cost and date of erection.

II.—STATISTICS.

Superintendents and Principals are requested to furnish exact information on the following points for the school year 1874-75, that is, from September 1874 to June 1875, inclusive:

AGGREGATE ITEMS.

1. Population of the district.

2. Number of children between the ages of five and twenty, as shown by the school census.

3. Cash valuation of school property, including buildings and grounds, libraries and apparatus, etc.

4. Cost of superintendence and instruction.

5. Cost of incidentals.

CLASSIFIED ITEMS.

	Primary Grade.	Grammar Grade.	High School.	Total.		Primary Grade.	Grammar Grade.	High School.	Total.
6. Absolute enrollment					12. Cost of education per capita for superintendence and instruction				
7. Average number belonging					13. Cost of education per capita for incidentals				
8. Average daily attendance					14. Cost of education per capita for permanent investm't.				
9. Number of men teachers					15. Total cost of education per capita.				
10. Number of women teachers					16. Aver. per capita cost for whole sch'l				
11. Number of pupils to each teacher, based on average number belonging									

The following rules should be observed in computing results:

(1.) Item No. 4 should include cost of warming, crayons, brooms, printing, janitors' wages, etc., etc. The aggregate sum may be found by subtracting from the whole amount raised for school purposes, *Item No. 4*, and what is used *to reduce the bonded debt.*

(2.) Item No. 6 is found by subtracting from the *whole enrollment* the number of names recorded twice or more times.

(3.) To find Item No. 12, divide the *aggregate cost of instruction in each grade* by the *average number of pupils belonging* in each grade, and to each of the three quotients add the *per capita cost of superintendence*, found by dividing the amount of the superintendent's salary by the average number belonging to the *whole school.*

(4.) Item No. 13 is found by dividing the *sum total of incidentals* by the average number belonging to the *whole school.* This item will be the same for each grade.

(5.) Item No. 14 is to be found by dividing the *interest* on Item *No. 3 at 7 per cent*, by the average number belonging to the *whole school.* This item will be the same for each grade.

(6.) To find Item No. 15, add Items 12, 13, and 14 *under each grade.*

(7.) To find Item No. 16, divide the sum of items 4 and 5, added to the interest on Item *No. 3* at *7 per cent*, by the average number belonging to the *whole school.*

Particular attention is directed to items 12, 13, 14, 15, and 16. Next in importance to the question *what have we done?* is the question *at what cost?* Correctly calculated and clearly stated, these facts will serve a most important purpose.

The statistical matter embraced in the above analysis may be presented in either of two ways: (1) It may be embodied in a chart for wall exhibition, in which case it should be rendered easily legible; or better, (2) it may be tabulated in concise form and included in the bound volume. In all tabulated statements the greatest attention should be paid to *clearness*. Bring each fact into sharp outline, so that the scheme may be self-interpreting.

III.—EXAMINATION QUESTIONS AND PAPERS—PUPILS' WORK.

The only feasible way to exhibit the actual results of our system of schools seems to be to present honest specimens of examination papers prepared by pupils. To collect such papers from entire classes in every grade where writing is taught, and in each of three or four studies, would, in our opinion, serve no good purpose, but would, by the vast mass of material, prevent such an examination as would reveal the real quality of results. We have, therefore, sought to simplify this most important work of preparation, and at the same time to secure all the really valuable ends intended by this part of the exhibition. We recommend that examination papers be prepared as follows:

1. In the High School grade, let three series of papers be prepared,—one by a class in Mathematics (Algebra or Geometry), one by a class in Natural Science (Physical Geography, Natural Philosophy, Natural History, or Physiology and Chemistry), and one in Language (English Grammar, Rhetoric, History, English Literature, French, German, Greek, or Latin).

2. In the Grammar grade two series of papers,—one by a class in Arithmetic, and one by a class in Geography.

These papers are to be prepared strictly subject to the following rules:

RULE 1.—None but *bona fide* pupils are to be included in the class, and no members of the class are to be excused for the purpose of raising the quality of the results.

RULE 2.—All papers shall be prepared between the first and fifteenth days of February, 1876. Not more than four hours shall be allowed for the preparation of a paper on any one topic, and this time shall include the entire work from the time the questions are placed before the pupil to the completion of the copy submitted.

RULE 3.—The ground of the examination shall be the work done within the current school year, according to the course of study, which course of study shall accompany all manuscripts sent for exhibition.

RULE 4.—*Questions by whom prepared and precautions to be observed.* The questions for examinations shall be prepared by the superintendent of schools, or some other person not engaged in the instruction of the class or classes under examination; and the utmost care shall be taken that no information in regard to the nature or topics of the questions be circulated among the pupils, and that no intimation of the ground of examination, except as in Rule 3, to be given to the teachers of the classes to be examined previous to the time of examination.

RULE 5.—*Title page and declaration of chief officers.* A title page after the following form shall be inserted in every volume, collection, or set of manuscripts designed for exhibition; and no papers shall be admitted for exhibition unless accompanied by a declaration from the principle executive officer of the school or other institution of learning thereby represented that said papers were executed in accordance with the above rules and Rule 6, as below:

(Name of Institution or School System.) (Location.)

MANUSCRIPTS OF EXAMINATION OF
(Insert here the grade or grades of the class or classes examined.)
BEING THE —— YEAR OF THE COURSE IN
(Insert here the subjects of the examination.)
HELD
(Insert here the date of examination.)
ONE ENTIRE CLASS REPRESENTED.

The class has pursued this study ——.
Whole number of pupils in the grade, ——; average age, ——.
Whole number of pupils in the class represented, ——; average age, ——.
Per cent of whole number represented, ——; whole number of pupils in all the schools, ——.

RULE 6.—*Headings of manuscripts and declarations of students or pupils.* Every manuscript of every pupil or student should be headed in the pupil's own handwriting, with his name, age, grade, or class; the name of the school or institution of which his class is a part, and the date of the examination; and at the foot of the last page it should contain, also in the pupil's own handwriting, a minute of the time taken for the writing of the paper, which must include the whole time elapsing from the putting of the questions before the pupil to the handing in of the copy exhibited. On the completion and handing in of any manuscript or specimen for exhibition under Class 1, the student or pupil should make the following declaration on a separate slip of paper over his own signature, viz.:

"This accompanying manuscript was written by myself without aid from any source."

The manuscripts of every class shall be accompanied by a written declaration by the teacher, or from the one who had charge of the pupils of the class at the time of the examination, that the entire work of the class was done under his own eye, and that all the regulations were observed as herein prescribed. These certificates, written on separate sheets of paper, shall be sent to the superintendent or other officer having the direction of the examination. They need not, however, be sent to the Exposition.

RULE 7.—This manuscript work shall be written on LETTER PAPER of the ordinary size (about 8¼ by 10¼ inches), leaving margins for binding 1¼ inches wide.

RULE 8.—The questions to be answered should be written directly above each answer in all manuscripts presented for exhibition.

RULE 9.—All the papers prepared by a class shall be presented for exhibition.

RULE 10.—Classes examined shall be composed of different sets of pupils; that is, no pupil shall have more than one paper on exhibition.

IV.—NARRATIVE HISTORY.

For the purpose of giving unity and perspicuity to the exhibit of each school, it is recommended that each superintendent or principal prepare a narrative history of the school under his charge, throwing into sharp outline those facts which seem to characterize the system. This history may embrace information falling under the following heads:

1. The organization of the school, whether under the general law or under special act (if under a special act, let it be quoted); date of organization; board of trustees, its officers, members, time and mode of their election, term of office, salaries, standing committees; superintendent or principal, his relation to the board and to subordinate teachers, his general duties and prerogatives; teachers, their examination and appointments, their salaries. their specific duties as to discipline; school funds, their source and amounts; buildings and grounds, their value, location and internal arrangement as shown by drawings and plans; mode of heating and ventilating buildings; school furniture and general appliances; libraries and apparatus; courses of study; programmes of recitation; grades, their number and names; rules and regulations for the government of superintendent or principal, teachers and pupils.
2. RESULTS, as shown by the number of pupils in each study of the course; the number of pupils in each grade, and their average age; the extent to which pupils pursue the studies of the high school course; graduates from the high school; the extent to which graduates from the school become teachers; the extent to which the high school has become a preparatory school to Michigan University.

The above enumeration of topics is not designed to be exhaustive, but suggestive; while it is desirable that the information should be classified somewhat as above, it is expected that each topic will be treated as the circumstances in each case may suggest.

This narrative history should, if possible, be printed in clear, bold type; but when this cannot be done, it should be very legibly written on paper like that prescribed for examination papers, leaving a margin for binding.

V.—ARRANGEMENT OF MATERIAL.

It is of the utmost importance that all material sent for exhibition be arranged in an attractive and convenient form; to this end we recommend that as much as possible of the material above described be included in a single bound volume, somewhat in the following order:

1. Views of buildings, grounds, school rooms, etc.,—mounted to correspond in size with the paper heretofore prescribed; photographs of officers, teachers, etc.
2. Names of school officers, superintendent, principal, and teachers.
3. Statistics in tabulated form.
4. Narrative history.

5. Examination questions and papers.
6. Catalogues and reports. (It is very desirable that complete sets of these documents be sent to the Board of Managers for preservation in the State Library.)
7. Rules and regulations not contained under above (6).
8. Blanks filled out as in actual practice. Several small blanks may be mounted on one sheet, but the larger ones should be mounted separately. Those larger than the page may be folded.

This volume, strongly bound, should be stamped with the name of the school sending it. A duplicate volume might be prepared at but little additional expense, and be preserved in the school as a Centennial memorial. Even if no other good purpose were subserved by this work than the compilation and preservation of school history, it will be worth many times its cost. The volume sent to the exhibition will be finally deposited in the State Library at Lansing.

Schools which cannot find facilities for binding at home may send their material to State Centennial Board, who will prepare the volume at the lowest obtainable rate.

VI.—ARCHITECTURE OF COUNTRY SCHOOLS.

Scattered throughout our State are country school houses which are models of elegance and convenience, and these deserve representation beside the more costly buildings of our cities. The superintendent or principal of schools at each county seat is particularly requested to secure a photographic view of the best country school house in his county. In most cases this can be secured by an appeal to the Board of Trustees of the given district. The ex-county superintendent will be most competent to select the house which is to be represented.

The above is intended as the *minimum* of preparation which schools should make for the Centennial exhibition. We wish it to be clearly understood, however, that schools which are prepared to exceed these limits are most cordially invited to do so. We wish each school to be represented in the most creditable manner, and we place no limit on individual enterprise and public spirit. Whatever is sent will be employed in the most judicious manner possible, and in a way to reflect most credit on the respective schools.

VII.—TRANSMISSION OF MATERIAL.

The material, having been prepared as herein suggested, should be securely boxed or otherwise carefully packed, and forwarded, with charges prepaid, to State Centennial Board of Managers, room 11 Bank Block, Detroit, Mich.

Articles designed for exhibition should be sent at the earliest practicable day, and in no case later than April 1st, 1876.

D. C. JACOKES,
For the State Centennial Board of Managers.
H. S. TARBELL,
W. S. PERRY,
W. H. PAYNE,
For the Committee of the State Association.

Detroit, January 17, 1876.

II.—CATALOGUE OF THE EXHIBIT IN THE DEPARTMENT OF EDUCATION.

STATE EDUCATIONAL INSTITUTIONS.	Vols.	DESCRIPTION.
University of Michigan, Ann Arbor. JAMES B. ANGELL, Pres.	16	Students' Theses (5); Drawings from the Engineering Department (2); Microscopic Drawings (5); *History of the University*, by Prof. Adams(1); *Description of the Art Museum*, by Prof. Frieze (1); Chart of the Educational System of Michigan (1); Calender of the University (1).
Agricultural College, Lansing........ T. C. ABBOT, Pres.	3	Students' Work (3); *Forestry of Michigan* (1); Chart of Mich. for 1836 (1); chart of Mich. for 1876 (1); Map of the College Farm, Garden, and Lawn (1).
Institution for the Education of the Deaf, Dumb, and Blind, Flint...... PROF. BANGS, Prin.	1	Pupils' Work (1); one bedstead made by a blind boy, and bedding made by a blind girl; the Lord's Prayer in needle work; a pair of calf boots elegantly made by a deaf and dumb pupil; basket work by blind pupils.
State Public School, Coldwater...... LYMAN P. ALDEN, Supt.	2	Pupils' Work (1); *History of the Institution* (1).
State Reform School, Lansing....... FRANK M. HOWE, Supt.	3	Students' Work, History, Photographs, Catalogue.
Asylum for the Insane, Kalamazoo..	1	History, Photographs.
Normal School, Ypsilanti............ JOSEPH ESTABROOK, Prin.	2	Students' Work, History, Photographs.
GRADED SCHOOLS.		
Adrian................................ W. H. PAYNE, Supt.	1	Pupils' Work, History, Engravings, Photograph, Rules and Regulations, Blanks.
Ann Arbor............................ W. S. PERRY, Supt.	1	Pupils' Work, History, Engravings, Photographs, Rules and Regulations, Blanks, Drawings.
Battle Creek.......................... I. L. STONE, Supt.	1	Pupils' Work, History, Photographs, Rules, Blanks.
Bay City............................... I. W. MORLEY, Supt.	5	Pupils' Work, History, Photographs, Blanks. Rules, Drawings.
Benton Harbor....................... VALOIS BUTLER, Prin.	2	Pupils' Work, Rules.
Brooklyn.............................. DAVID B. HASKINS, Prin.	1	Pupils' Work, Photographs.
Coldwater............................ D. BEMISS, Supt.	2	Pupils' Work, History, Photographs, Rules, Blanks, Drawings, Maps.
Calumet............................... EDWIN T. CURTIS, Supt.	1	Pupils' Work, History, Photographs, Rules, Blanks.
Detroit................................ J. M. B. SILL, Supt.	5	Pupils' Work, History, Photographs, Drawings, Maps, Penmanship.
East Saginaw........................ HORACE S. TARBELL, Supt.	11	Pupils' Work in all grades where writing is taught, History, Photographs, Rules, Blanks, Penmanship.
Flint.................................... T. W. CRISSEY, Supt.	1	Pupils' Work, History, Photographs, Rules, Blanks.
Jonesville............................ J. D. H. CORNELIUS, Supt.	1	Pupils' Work, Photographs, Maps, History.
Grand Rapids........................ A. J. DANIELS, Supt.	3	Pupils' Work, History, Photographs, Blanks, Rules, Drawings.

II.—CATALOGUE—CONTINUED.

STATE EDUCATIONAL INSTITUTIONS.	Vols.	DESCRIPTION.
Howell W. CAREY HILL, Supt.	1	Pupils' Work, History, Photographs, Blanks.
Hillsdale CHAS. G. ROBERTSON, Supt.	2	Pupils' Work, History, Photographs, Blanks, Rules.
Kalamazoo AUSTIN GEORGE, Supt.	2	Pupils' Work, History, Photographs, Blanks, Rules.
Ionia W. J. EWING, Supt.	2	Pupils' Work, History, Photographs, Rules.
Lansing E. V. W. BROKAW, Supt.	1	Pupils' Work, History, Photographs, Blanks, Rules.
Niles CYRUS B. THOMAS, Supt.	1	Pupils' Work, History, Photographs, Blanks, Rules.
Pontiac JOSEPH C. JONES, Supt.	1	Pupils' Work, History, Photographs, Blanks, Rules.
Saginaw City C. A. GOWER, Supt.	3	Pupils' Work, History, Photographs, Blanks, Rules, Penmanship.
St. Johns W. R. CLARK, Supt.	1	Pupils' Work, History, Photographs, Blanks, Rules.
Wyandotte J. BURKE, Supt.	1	Pupils' Work, History, Photographs, Blanks, Rules.
DENOMINATIONAL SCHOOLS.		
Adrian College (Protestant Methodist) GEO. B. McELROY, Pres.	1	History, Statistics, Location, Course of Study, Photographs, and Drawings.
Albion College (Methodist Episcopal) GEO. B. JOCELYN, Pres.	1	History,
Hope College, Holland (Reformed Dutch Church) PHILIP PHELPS, Pres.	1	History.
Hillsdale College (Free Will Baptist) DEWITT C. DURGIN, Pres.	1	History.
Kalamazoo College (Baptist) KENDALL BROOKS, Pres.	1	History.
Olivet College (Congregational) JOHN H. HEWITT, Acting Pres.	1	History.
Raisin Valley Seminary (Friends) OLIVER G. OWEN, Prin.	1	Pupils' Work, History.
Ladies' Academy, Monroe (Presbyterian) E. J. BOYD, Prin.	1	Pupils' Work, History, Statistics.
Detroit Medical College EDWARD W. JENKS, Pres.	....	History, Statistics, Course of Study.
COMMERCIAL COLLEGES.		
Goldsmith's, Detroit	15	History, Photographs, complete set of Books by Pupils, covering entire course.
Parson's, Kalamazoo	1	Pupils' Work, Photographs, History.
Mayhew's, Detroit	3	Students' Work, illustrating a complete system of commercial education. The scientific and moral considerations underlying a correct system of commercial education.
Pond's, Ann Arbor	1	A new system of book-keeping; 1 chart.

II.—CATALOGUE—CONTINUED.

STATE EDUCATIONAL INSTITUTIONS.	Vols.	DESCRIPTION.
CHURCHES.		
Baptist	1	Origin, History, and Progress, by Rev. A. Owen, D. D.
Methodist Episcopal	1	Origin, History, and Progress, by Rev. E. H. Pilcher, D. D.
Presbyterian	1	Origin, History, and Progress, by Rev. Geo. Duffield, D. D.
Protestant Episcopal	1	Origin, History, and Progress, by Rt. Rev. Bishop McCroskey, D. D., D. C. L., Oxon.
Reformed Church	1	Origin, History, and Progress, by Rev. Philip Phelps, D. D., President of Hope College.
Roman Catholic	1	Origin, History, and Progress, by Rt. Rev. Bishop Borgess, D. D.
Congregational	1	Origin, History, and Progress, by Philo R. Hurd, D. D.
PENAL INSTITUTIONS.		
State Prison, Jackson	1	History, Photographs.
House of Correction, Detroit	1	History, Photographs.
SECRET SOCIETIES.		
Royal Arch Chapter	1	Organization and History, by W. P. Innis.
Commandery of Knights Templar	1	Organization and History, by W. P. Innis.
Independent order of Good Templars	1	Organization and History, by Rev. J. Russell.
MISCELLANEOUS.		
Department of Public Instruction	15	A complete set of Reports of the Superintendent of Public Instruction; furnished by Hon. Daniel B. Briggs.
Pomological Society	5	Complete set of Reports.
Board of Agriculture	11	Complete set of Reports.
The Press of Mich.	3	A collection of the newspapers published in Michigan, by T. S. Applegate of the Adrian Times; a History of the Press in Michigan, by T. S. Applegate.
(Whole number of volumes)	152	

MURAL CHARTS.—Showing location of schools and comparative school statistics of Michigan. (3).

MURAL CHART.—Detroit City Schools.

ENGRAVINGS.—Michigan School Buildings.

MAP.—An ancient French map of Michigan.

CHART.—Chart and Key of the Educational System of Michigan, and the Denominational Colleges, published by the State Centennial Board.

MAPS.—Map of Lake Superior and the Mining Regions; of the Central Portions of Central Michigan.

CASES.—1 Silvered Case of Foreign Birds; 1 Silvered Case of Land and Tree Shells; 1 Silvered Case of Marine Shells. These Cases were furnished by R. A. Beal, of Ann Arbor, and the collections themselves by J. B. Steere, a graduate of Michigan University, who has spent five years in foreign countries in making a vast and varied natural history collection.

Case of Pharmaceutical Preparations from the University.

Specimens of School Desks from the Michigan School Manufacturing Company, Northville and Detroit.

Specimen of Recitation Seat, Ann Arbor.

The articles above enumerated were exhibited within a space of eleven by twelve feet. The volumes were kept in an upright case with glass doors, and were submitted to the inspection of those only who were interested in work of this character. I was instructed by those who placed the volumes in my charge to protect them from all needless injury by handling, but to allow free access to all who might desire to examine them attentively.

Most of the volumes presented by the public schools were large quartos, elegantly bound in full Morocco. Had these been subdivided by topics, as might have been done, and was really done in many instances, our catalogue might have been greatly extended. Superficial observers were no doubt disappointed at the seeming smallness of Michigan's exhibit in this department; but a slight examination revealed the fact that there was here contained in compact, accessible form all the material really needed for the study of our educational system. As showing the estimation in which our exhibit was held by those who desired to study and understand our system of education, the fact may be mentioned that certain foreign commissioners spent whole days in examining these volumes, and even copying large portions of some of them.

Another complimentary fact deserves mention. It was a subject of universal remark and commendation, that the pupils' work was unmistakably honest, that nothing had been done to conceal faults or highten effect, that the exhibit revealed the every day work actually done in Michigan schools.

One of the most distinguished foreign commissioners remarked: "School children at home make mistakes; I observe that pupils in Michigan do the same, though I notice that in ——— the work is perfect,—there children make no mistakes; your work is instructive,—from their work I can learn nothing."

The schools of the State will long remember their "Centennial Examination;" and better still, these schools will long feel the influence for good, which was a direct result of the preparation of these papers. The simple fact of writing on paper ruled as required by the instructions has had a most salutary influence. Written examination has now become a means of culture. The matter of the paper is no longer the sole or even the chief question; its form, its division into paragraphs, the style of penmanship, spelling, punctuation, clearness of expression,—all these features have been assigned their true value. This one result is worth all the time and money which the Centennial examination cost.

Some portions of this exhibit deserve special mention in this report. One of the most creditable features, and one unusually commended, was the sample of penmanship from the city of Detroit, where this branch of instruction has been for several years in charge of Prof. Newby. These samples of writing were from entire classes in all grades where penmanship was taught. They are models of neatness and accuracy, and are a good illustration of the culture which may be attained, even in simple matters, by steady adherence to a rational plan of instruction.

The drawings from the Polytechnic School of the University were especially commended, not only for their beauty and accuracy, but because they were real work,—not copies from other drawings, but representations of actual objects.

The microscopical drawings from the University were noticeable for the delicate accuracy with which they were executed. These too were representations of the real objects as seen under the microscope, and not copies of copies.

Superintendent Tarbell's volumes exhibited the whole range of graded school work, from the point where pupils begin to write up to and through the High School. His exhibit was more comprehensive than any other in this department, and thus represented the entire graded school system of Michigan.

These volumes, having served their purpose in the great Exposition, will be permanently placed in the State Library at Lansing. In this way they will not only serve to commemorate this celebration of our Centennial year, but will furnish those who come after us with the means of estimating the progress of Michigan in the work of education.

Our State Public School for dependent children, unique in organization and purpose, was the subject of profound study by the philanthropists of all nations, who saw in it a hitherto unrealized ideal. It is not too much to say that this institution has thus become a model for universal imitation.

Judge Campbell was requested to prepare a sketch of the legal history of Michigan. This he generously consented to do, and at once proceeded to execute his task. The work grew upon his hands from the mere sketch at first proposed to the dimensions of a volume; and we have as the result by far the ablest and most complete history of Michigan yet published. This of itself is one substantial result of the effort to worthily represent Michigan at the Exposition.*

The History of the Press of Michigan, prepared by T. S. Applegate, involved a great amount of labor, and reflects credit on the compiler as well as upon the enterprise of the editorial fraternity of the State. As a matter of history for future reference, this collection of information is of the greatest value.

III.—THE AWARDS.

The judges in the Department of Education and Science at the Centennial Exhibition were the following:

Andrew D. White, LL. D., President of Cornell University.
D. C. Gillman, LL. D., President of John Hopkins University, Baltimore, Md.
John W. Hoyt, M. D., LL. D., Madison, Wis.
Sir Charles Reed, London, England.
Juan J. Marin, Spain.
Otto Torell, Director of the Geological Survey of Sweden.
M. Touret, Paris, France.
John M. Gregory, President of Illinois Industrial University, Champaign, Ill.

The educational exhibit from Michigan was visited by the judges in a body, and each volume was carefully examined. The awards, consisting of medals of uniform design, accompanied by diplomas which specify the points of excellence, have not yet been received, and but little more can be done under this head than to name the successful competitors, which are as follows:

1. To the Centennial Educational Committee, Michigan, for general educational exhibits.
2. To the Michigan State University, for microscopical exhibits, etc.
3. To the Industrial School for the blind, deaf, and dumb, Flint, for pupils' work.
4. To the Michigan State Agricultural College, for collection of woods.

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*Outlines of the Political History of Michigan. By James V. Campbell. 8vo., pp. 606. Detroit, 1876.

5. To the School for Dependent Children, Coldwater, for plans, drawings, reports.
6. To Board of Education, Detroit, for school furniture.
7. To Board of Education, Ann Arbor, for pupils' work.
8. To Board of Education, Adrian, for pupils' work.

IV.—TO WHAT EXTENT DO OUR PUBLIC SCHOOLS CONTRIBUTE TO THE FORMATION OF GOOD CITIZENS?

The Universal Expositions held at London, Paris, and Vienna, were International Fairs for the exhibition and comparison of national industries. To a greater degree than any other, our Centennial Exposition was characterized by this pronounced industrial feature. Though the merely beautiful or ornamental, appealing exclusively to the æsthetical nature, was seen on every hand, still the basis of all final judgments upon the relative merits of a nation's display was utility.

The queries which prepossessed every thoughtful visitor were, What is this good for? How does it minister to human comfort? How large an element of human happiness is involved in its use? To what degree will it relieve human toil of unnecessary burdens?

It was on this basis that the competing nations were assigned their respective places in the scale of civilization. Thus Russian industries were brought into comparison and contrast with Turkish industries, French with German, Belgian with Italian, British with American, each with every other. If civilization means one thing more than another, it means human supremacy over natural forces and natural products, for man's good—the training of natural agents to do man's work and to run on his errands—the working up of material into infinitely diversified forms for man's use.

While the basis of these diverse judgments was utility, it was the useful as wrought into beautiful and symmetrical forms. As symmetry involves just proportion, the eminently useful involves the symmetrical, and hence the beautiful. Whether it be the mighty Corliss engine or a tiny mantle clock, modern industry clothes each with graceful outlines, embodies the beautiful in the useful, and thus causes an object which ministers to our material comfort to minister as well to our æsthetical enjoyment.

The industrial spirit, that force which impels the nations to utilize natural forces and material for man's pleasure and profit, has become the spirit of the age. Human intelligence is everywhere at work on these industrial problems, and national greatness rises or falls in proportion as the nation's workmen apply intelligent skill to diversified forms of industry. So multiplied have become the means of intercommunication by steamer, telegraph, and railway, that the old barriers between the world's markets have been broken down, so that men buy at home or abroad, wherever their needs can be best supplied.

Nations will sell and grow rich just in proportion as their products are useful, diversified, and of excellent quality; and lines of traffic will fluctuate as the centers of such production pass from nation to nation.

The causes which thus affect international trade and, by implication, national prosperity and growth, determine also the relative prosperity and growth of the subdivisions of a nation,—its States, districts, and cities. Centers of remunerative industry will be located wherever *skilled* labor abounds and is employed in the production of articles which excel in quality and style.

But this comprehensive law, which involves nations, States, and cities, extends its influence even to the individual, so that there is absolutely no escape from its requirements, save on condition of enduring its penalties, poverty, weakness, and decay.

Whether, therefore, we think of ourselves as a nation subject to competition with other nations, as a State subject to competition with other States, or as individuals subject to competition with other individuals, the lesson is one and the same, *skilled industry is the sure road to prosperity and progress.*

This is the economic lesson impressed by the Centennial Exposition, and it will determine a readjustment of the world's industries.

But on what basis will this readjustment be made? Here we are brought to consider and interpret the grand, the universal lesson of the Exposition. Back of the industrial problem, and involving its solution, is the problem of *industrial education,*—the ways and means of giving such scope and direction to popular education as will foster national industry and state industry, as will create a taste for some department of industrial art and at the same time supply the means for its successful practice. Thus the very basis of national prosperity is universal education, giving breadth, depth, and versatility to human thought, and supplying, in large measure, those elements of practical knowledge which will soonest and most efficiently fit the pupil for some variety of useful labor whereby he may earn an independent and respectable livelihood.

It is every day becoming more and more apparent that true protection consists, not in forbidding us to buy what we need abroad, but in teaching us to manufacture better and cheaper articles at home, and out of our abundance turning the current of trade in our favor. It is on this basis that Italy is reconstructing her industrial condition, and the sagacity of her statesmen is evinced by the far-seeing measures contemplated for her relief.

"For a long time we Italians have been bewailing our national poverty. Some attribute the fault to our constitutional indolence, some to our past political servitude, some to the priestcraft which has always kept us in the background, some to the inconsiderate government of the Liberals, prodigal in expenditures which are unproductive, but stingy in those which are remunerative.

"None of these, in my opinion, disclose the seat of the evil. The true cause of our empty exchequer is in our incapacity to furnish useful and valuable products at a moderate price,—the two conditions which are completely fulfilled by producers abroad.

"But why are their abilities for production better than ours? The reply is simple: We are not taught to do work equally useful, and hence purchasers bring us no income. Hence, in order to overcome this deplorable inaptitude, our first necessity is to provide for that kind of instruction which will make such industries possible, otherwise we shall never extricate ourselves from our present embarrassment.

"But what must this branch of instruction be?" *

This question asked in behalf of Italy is worthy of universal attention; its answer is of momentous importance to the United States, to Michigan, to every intelligent citizen.

The keynote of this whole discussion was most admirably struck by Governor Bagley in his retiring message: "Are we doing our educational work in the best way? Are our schools all they ought to be? Do they help our children as much as they should in the practical things of life, and fit them to be productive, self-helping citizens? In times of financial depression like the present, when we fully realize that the only way up and out is through the productive industry of the people, the question is a pertinent one."

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* La Rivista Europea, Agosto, 1876. *Gli Insegnamenti del Disegno nelle nostre Scuole Elementarie,* by Pietro Selvatico.

A most important purpose contemplated in the organization of our educational exhibit was to collect information which might be made to bear directly on the prosperity of our schools, and through them on the prosperity of our citizens. With this end in view I relaxed no effort during my attendance on the exposition to obtain information bearing on this question from every available source, with the hope that, having taken stock of our own educational progress, we might make whatever readjustments are necessary, and thus make our school system still more worthy of the encomiums bestowed upon it. It is hoped that the following analysis may assist in forming some clear notions on the question now under discussion:

1. *To what extent does our system of public instruction fulfill the ends contemplated in its organization?*

From the fact that the State assumes the general direction of public education, it follows that the schools are parties to a virtual contract whereby they are pledged to execute certain trusts. What is the consideration which the State has in view and is entitled to receive from the schools? Good citizens. As between citizens who are self-supporting and contribute to the prosperity and permanence of our civil institutions, and citizens who are dependent and are an element of weakness and danger, the advantages are so decidedly on the side of the former that the State makes an immense gain by assuming the temporary charge of their training.

What elements are involved in good citizenship? Intelligence, virtue, and industry.

The question asked at the head of this paragraph will be answered just in proportion as we are able to discern the influence which our schemes of popular education has on each of these three objects.

(1.) Intelligence implies breadth of mental view, accuracy of judgment, and diversified knowledge. In intellectual culture, the art of arts is Reading. By this art we are brought within reach of all that is instructive and inspiring in literature. This art puts us in possession of the accumulated knowledge of the past, and thus enables each generation to take advantage of the wisdom and experience of all the generations which have preceded. Again, reading in its true sense, the art of interpreting written composition, constrains us to rethink the thoughts of our author, and thus brings us into some measure of equality with him.

The one art of reading, then, gives us diversified knowledge, and when worthily employed, almost of necessity broadens our mental vision and contributes to the solidity of our judgment.

Now, the public schools have made us a nation of readers, and if they conferred no benefit save this, they would still be worthy of support at public charge.

But the study of Geography is almost as universal as that of reading, and this, furnishing the pupil with varied and valuable knowledge, makes him cosmopolitan and catholic. A survey of the world, as this science presents it, must liberalize and enlighten every mind not constitutionally small.

The study of Number, even more universal than that of Geography, induces the habit of exact reasoning from established data to necessary conclusions. It is a systematic training of the judgment in the most effectual manner, even though the formal rules of logic are lost sight of.

The study of Grammar, by teaching the art of classification, is a virtual introduction to formal logic, and, when intelligently pursued, is an invaluable aid in developing the reasoning faculties.

These subjects are almost universally pursued in our common schools; and even if we were to close our examination at this point, we would be justified in the assertion that our scheme of public instruction makes ample provision for the training of intelligent citizens.

If, however, we inquire into the nature of our secondary instruction given in the high schools, which form a characteristic feature of the Michigan school system, we shall find fresh proofs of the utility of our public schools. Here the study of history, literature, and language cultivates and confirms a taste for reading, gives still greater breadth to the mental vision, and furnishes practical exercises in problematic reasoning, that mode of reasoning which is brought to bear on the solution of the every-day problems of life. Algebra and Geometry give greater perfection to demonstrative reasoning, while the tendency to dogmatize which is fostered by mathematical studies is counteracted by the natural sciences, as well as by the literary studies just mentioned. The study of the experimental sciences, when properly pursued, inculcates the necessity of deliberation, and communicates an element of candor and impartiality to human judgment, that attitude of mind which fits us for bringing judicial fairness to bear on the perplexing questions which are ever presenting themselves for solution.

(2.) With respect to the influence of general education on public morality, there are two extreme views. The American theory is that the surest defense against the encroachments of crime is education, while the theory based on human evolution is that education has little or no influence on morality.[*] Like all extreme views, each has a measure of truth and a measure of error, while the absolute truth lies between. It is undoubtedly true that merely to know the right way induces many men to pursue it, while to know the wrong way induces them to shun it; but it is also true that many do wrong, and even persist in doing wrong, with a full knowledge of what they are doing and what the inevitable consequences will be.

All this is equivalent to saying that while we are born with predispositions which may and often do overrule the decisions of an enlightened judgment, we are also subject to influences which may modify character. It may be affirmed, then, that within certain limits the direct influence of public school instruction is in favor of public morality. It remains to be shown how its indirect influences are still more far-reaching and effective.

Statistics relating to the "dangerous classes" show that there is a marked uniformity between criminality and idleness.[†] Of this uniformity three explanations are possible:

(1), Idleness is the cause of criminality; (2), Idleness is the effect of criminality; (3), Idleness is sometimes the cause and sometimes the effect of criminality, according as the criminal habit is acquired or innate. As in the former case, there is a reason to believe that the third explanation embraces what is true in each extreme hypothesis, and is therefore the true one. There is no valid ground for believing that the education given in our public schools has any certain efficiency in curing crime, especially where the criminal habit is innate; but there are the best of reasons for thinking it prevents crime. Those who have had the training of children in family or in school have discovered that the great secret of success is preöccupation.

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[*] The fact is that scarcely any connection exists between morality and the discipline of ordinary teaching. Mere culture of the intellect (and education as usually conducted amounts to little more) is hardly at all operative in conduct.—*Spencer* (*Social Statics, p. 382*).

[†] "Of 889 men in the State prison in 1875, 793 had never been apprenticed, and of 334 received in 1876, 17 only had ever been apprenticed."—Governor Bagley's Message.

In the first place, the mind must be occupied with something: to think is inevitable. Just in proportion, then, as our schools furnish worthy subjects for contemplation and study, they preoccupy the mind against the intrusion of evil thoughts, and so have an indirect though still powerful moral tendency. The varied information supplied by reading, topics for reflection derived from geography and history, the pursuit of truth encouraged by the natural sciences, and the refined tastes inspired by literature, all conspire to give worthy employment to the mind, and so promote right thinking,—the very basis of right action. It is simple vacuity, *ennui*, the painful unrest caused by the want of something to think about, that leads men to spend their leisure to such a bad purpose; and so, public lectures and public libraries, by furnishing the means of preoccupation, are most beneficent moral agencies.

Preoccupation is as wholesome in the domain of action as in the domain of thought. Thought may not always end in action, but any systematic labor is sure to exert a large controlling influence on the thoughts. Hence it is that steady employment, the practice of a trade or of a profession, has such a wholesome moral influence; both thought and action are preoccupied and their energies directed to a useful purpose. Wise parents take practical advantage of this principle, and effectually guard against the encroachments of evil, by supplying something to give innocent and useful occupation to the thought and physical activities of their children, as by books, pictures, music, lectures, interesting sights abroad, and by card-printing, scroll-sawing, carpentry, wood-turning, book-binding, etc., etc., etc.

It is plain that the influence of public school education on morality, through the preoccupation of the physical activities, will depend on the extent to which pupils are helped to adopt some useful employment. The consideration of this question is reserved for the next paragraph.

Thus far, then, we are justified in believing that our education fosters a high degree of intelligence, and at the same time is a source of direct moral power in so far as it conduces to right thinking, and of indirect moral power in so far as it preoccupies the mind against the intrusion of evil thoughts. If it shall appear that our public schools are nurseries of industry as well as of intelligence, they must be credited with a second and most potent element of indirect moral power.

(3.) A third element in good citizenship is Industry. To what extent does our education foster the industrial spirit and contribute to the formation of industrious habits? On this subject also two extreme views are held. The orthodox belief is that a high degree of intelligence, conjoined with good general scholarship, is all that the schools can be asked to furnish, and that it is in fact the very best preparation for the duties of life which can be given under the present mode of school organization. The acquirement of mental discipline is held to be the great object of public school instruction.

The heterodox theory is that pupils should be prepared at the moment they leave school to enter upon vocations whereby they may earn an independent livelihood. The acquisition of practical knowledge is held to be the great object of public school instruction.

There is an important element of truth in the assertion that general scholarship and sound mental discipline constitute a preparation for the duties of active life; just as it is true that,—

> "A field of corn, a fountain, and a wood,
> Are all the wealth by nature understood."

As, in the latter case, great versatility and superior mechanical skill might transform rough material into useful and even elegant forms; so, in the first case, mere ability may transform itself, *per saltum*, into active usefulness. As a rule, however, men cannot make houses and furniture directly from the standing tree; material must be subjected to successive grades of specialization, before it can be generally employed for specific uses. *Potentially*, scholarship is a preparation for the duties of active life; *actually*, it falls far short of this object. A man may leave college with all the knowledge of the schools, and yet he may be utterly incompetent to earn his daily bread. Our higher education seems to presume that those who receive its benefactions are destined either to follow one of the learned professions, or to lead a life of ease, in which the sole employment is mental and contemplative. Our education should recognize the fact that the greater part of mankind must live by some kind of manual labor; and that for this, instruction must be somewhat specialized in order that it may be employed for practical ends. While the belief in the value and efficiency of culture, scholarship, and mental discipline has, theoretically, a real basis of truth, it has also, on the practical side, grave limitations, which have not been sufficiently considered.

While the heterodox theory is right in insisting on a greater specialization of instruction, it is obviously wrong with respect to the degree to which this specialization should be carried. It is not the province of the public schools to turn out fully equipped masons, grocers, printers, foundrymen, bankers, or even tradesmen's clerks. Absurd as such a doctrine is, much empty declamation has been employed in its support. When public opinion abandons one extreme position, it almost invariably seeks refuge in another; while the truth is usually to be found at the golden mean. In the present agitation for practical education, there is much that is ill-timed and chimerical; but as it is a natural reäction against other absurdities almost equally great, its tendency will be wholesome, provided men have candor enough to permit those readjustments which are plainly warranted by facts.

Keeping in mind the important fact already stated, that the greater part of mankind must subsist by some form of manual labor, the following statement will exhibit, in general terms, the *industrial value* of our public schools as now organized:

FIRST PERIOD OF SCHOOL LIFE,—FROM THE FIFTH TO THE TENTH YEAR OF AGE (PRIMARY GRADE).

During this period pupils have learned to read simple composition with some fluency; can spell with tolerable accuracy; can write with bare legibility; can add, subtract, multiply, and divide simple numbers with tolerable accuracy. These acquirements scarcely suffice for beginning an apprenticeship, and have, [illegible]fore, no definite industrial value; still, considering the age of the pupils [illegible] are here instructed, scarcely anything more can be attempted or expected.

SECOND PERIOD OF SCHOOL LIFE,—FROM THE ELEVENTH TO THE FOURTEENTH YEAR OF AGE (GRAMMAR GRADE).

At the close of this period, pupils have become fluent readers; can write with accuracy and neatness: can perform all ordinary arithmetical calculations with accuracy and reasonable promptness; have a fair knowledge of geography and grammar, and know something of United States history. As a preparation for gaining an independent livelihood, these acquirements are only indirectly available, save in exceptionable cases. Marked proficiency in penmanship or in calculation might secure employment as a clerk or accountant; but, on the whole, the pupil has but very little knowledge which he can turn to direct practical account.

THIRD PERIOD OF SCHOOL LIFE,—FROM THE FIFTEENTH TO THE TWENTIETH YEAR OF AGE (HIGH SCHOOL GRADE).

Here the pupil has acquired a considerable knowledge of language and literature; has learned the elements of algebra and geometry, and has general and, on the whole, very superficial information on several of the natural sciences. This knowledge may be directly useful in teaching and in clerkship, and may furnish a preparation for entering on the study of the professions; but it ministers in no eminent degree to the practical needs of every day life; does not predispose pupils to adopt some special vocation, and does not furnish the means for becoming expert and skillful workmen in the constructive arts. In a word, this highest grade of common school instruction leaves the pupil very imperfectly equipped for the real business of life. Potentially, the means of livelihood are within the pupil's reach; though actually, he may not be able to grasp them without considerable additional labor.

To guard against all false inferences, it must be repeated that from the very nature of things the public schools cannot furnish an apprenticeship in handicrafts, trades, arts, or professions; the instructions must of necessity be general and not special. While admitting the full force of these facts, however, it is claimed that the instruction given in our public schools can and should attain the following ends far more completely than it has hitherto done.

(1.) The constructive abilities of the pupil should be cultivated. The usefulness of a man is measured by what he can do, and not by what he is capable of learning. In the domain of thought, the pupil should be taught the art of expression, and not alone the art of interpretation. To analyze thought is a wholesome and necessary art; but man's power to express thought, either by pen or by word of mouth, is the measure of his influence and usefulness. So, too, in the domain of action, not only should the general constructive ability of the pupil be cultivated, but an inclination towards a definite order of construction should be encouraged; and withal, that kind of knowledge should be communicated which leads to skill and proficiency in constructive ability. In plain terms, most men must earn their bread by making something,—by working up material into useful forms; and hence it is necessary that the school should encourage constructive talent in the line of the pupil's inclination, and, at the same time, give him that knowledge which will help him to become a skillful citizen.

(2.) The schools should communicate a larger amount of useful knowledge—knowledge which is directly applicable to the every-day interests of man. Useful knowledge is here contrasted with that which is merely disciplinary or remotely serviceable, such as literary criticism, pure mathematics, astronomy, and geology. Knowledge which bears upon the maintenance of health and physical comfort, which discovers man's relations to society and to the State, which helps him to reason dispassionately on the problems of every-day life,—such knowledge ought to receive a very large share of attention, even at the expense of some branches of learning to which tradition has assigned a high place.

The foregoing criticism of our system of common school instruction results as follows:

(1.) Its intellectual value is great.

(2.) Its moral value is considerable, though limited by its industrial results.

(3.) Its direct industrial value is small.

2. The second branch of this inquiry is the following: *What modification should be made in our system of public school instruction in order that it may the more completely answer the purposes of its organization?*

(1.) It should give greater prominence to the cultivation of the constructive powers; it should more clearly recognize the fact that one important purpose is to do something to give expression to thought, sentiment, or purpose, or to construct by manual skill something in material form which is useful. In other words, our education should have a greater industrial value, in order that it may furnish the State with intelligent, virtuous, and *useful* citizens. The two functions of instruction may be characterized as follows:

FUNCTIONS OF INSTRUCTION.	1—	RECEPTIVE. Analytical. Critical. Abstract.
	2—	REPRODUCTIVE. Synthetical. Constructive. Concrete.

A thought is not fully learned till it has been expressed; synthesis is the complement of analysis, while both are essential parts of the knowing process; the abstract is comprehended only as it can be interpreted in the terms of the concrete; and criticism is unproductive if it be not followed by the constructive process. Hitherto our schools have communicated a vast amount of knowledge, but they have only imperfectly taught the art of transforming knowledge into power. The mind has been regarded as a capacity to be filled, and not as an energy to be brought into service; and man himself has been treated as though he were intelligence alone, and not intelligence inseparably bound up with matter. As a necessary consequence our methods have been incomplete. What has been done is well, but we ought to have done more.

The process of recitation supplements and completes the mere learning of the text,—the pupil here reproduces what he has lodged in his memory. In many schools, written examinations give still greater exactness to this constructive process, and the preparation of the papers for the Centennial Exhibition, has given a powerful stimulus to this practice. The almost universal use of some variety of "language lessons" is another movement in this same direction, and indicates very clearly the tendency of public opinion.

As yet but little systematic effort has been given to the cultivation of that variety of constructive effort whose end is industrial labor. In our public schools, we cannot teach pupils to make the thousand useful objects which would give them profitable employment; but we can teach them to construct representations of those objects, with every detail of symmetry, just proportion, and beauty: as we cannot give them a real visiting tour to London, Paris, and Rome, but can anticipate such visits by descriptions and representations; so, though we cannot teach a pupil to construct a house, we can teach him to construct a plan of a house, and thus give him a direct and most efficient preparation for this variety of labor. The art of drawing lies at the very basis of all skillful constructive ability, and thus imparts to education an almost universal industrial value.

"It must be conceded that, by its universal application, Drawing enters to a greater extent than History and Geography into the daily needs of men. Drawing is the basis of all the industries and of all the trades. It serves the mason and the carpenter before serving the architect; it serves the joiner and the blacksmith, the locksmith, the surveyor, the wheelwright, the needlewoman, the lace-maker, the upholsterer, the jeweler, the gardener, all professional workmen, before serving the sculptor and the painter. It was said by Count Laborde, after the Universal Exposition at London in 1851, that 'every man ought to learn drawing on the same ground that he learns writing, and that he might learn it without much more difficulty, since writing is itself a kind of exercise in drawing.' Besides, this art, so simple, is destined to work an immense and beneficent revolution in the industry of France. To-day it is seen that the trade in those numberless articles which constitute the dwellings, the furniture, the costume, and, I was about to say, the manners of civilized nations, falls to the country which will introduce into all its industrial products the most delicate and refined tastes." *

Attention has already been called to the project of reviving the industrial prosperity of Italy through the public schools of the Kingdom. The question was asked, what kind of instruction will awaken the industrial spirit and infuse

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* Rapport sur l'Instruction Primaire a l'Exposition Universal de Vienne. Par F. Buisson. p. 254.

skill and taste into industrial products? M. Bonghi, late Minister of Public Instruction, commissioned Pietro Selvatico to elaborate a scheme for the introduction of Drawing into the elementary schools, and the quotation on page 126 is an extract from this report.

For several years the teaching of Drawing has been obligatory in a great part of Europe,—in Prussia, Holland, Austria, Sweden, and Denmark. Though not obligatory in France, Belgium, Italy, Spain, and Portugal, it is included in the last two years of the Normal School course.*

In Massachusetts drawing has been made compulsory in the public schools, and in most of the large cities of the North this topic forms a regular branch of instruction,—is placed on an equality with reading, writing, and calculating.

In Michigan, but little attention has been paid to drawing as a branch of public school instruction. It has gained a foothold in a few of the larger cities, but practically it is a new branch of study, whose importance has not yet been duly estimated. Every consideration of public policy and private interest justifies its introduction into public schools of every grade, where it should be ranked with reading, writing, and arithmetic. The very general notion that drawing is a fine art rather than a useful art, has stood in the way of its introduction; it has been argued that as only a very few have the artistic genius, only a comparatively few can ever attain any considerable proficiency in drawing. The truth is, that while this art has a very high æsthetic value, which entitles it to the greatest consideration, it has also an almost incomparable industrial value, which entitles it to universal consideration.

(2.) Much more attention should be given to Natural Philosophy, Chemistry, and Physiology.

To some of nature's laws we are only remotely related; they affect us in a very general manner, and we have but little power either to interrupt or to modify their action. With other laws we are brought into immediate contact. They act upon us for good or for evil during every moment of our lives; and they do not relax their hold on our physical organization till the last particle has been again assimulated with the elements. At work and at rest, by day and by night, from without and from within, we are subject to the action and interaction of invisible but potent forces, and our health, our happiness, our worldly prosperity, are all conditioned on the manner in which we modify and control them. The sciences which discover the laws which so intimately concern us are Natural Philosophy, Chemistry, and Physiology, and every enlightened consideration bespeaks for them a large share of attention. Consider for a moment this contrast: a year is devoted to the study of Algebra, two terms to the study of Natural Philosophy; a year to the study of Geometry, a term to Chemistry; three years to Greek, one term to Physiology. It may be said that there is no real disproportion between the time given to Algebra and the time given to Natural Philosophy; that the first presents greater intrinsic difficulties than the second. If both branches be taught equally well, no one at all competent to judge will say that a shorter time should be given to Natural Philosophy than to Algebra. The fact is, that while mathematics have been thoroughly taught, the natural sciences have been very superficially taught; that while pupils have learned mathematical *principles*, they have learned only a smattering of scientific facts. What I bespeak is a thorough study of these sciences,—such a study as is made possible only by a larger amount of time, and the use of all available helps for demonstration and experiment. Every High School should have a supply of philosophical apparatus, a chemical laboratory, and a collection of physiological models.* A case for philosophical apparatus can be placed in any ordinary school-room; and if no provision was made for a chemical labaratory in the building plan, an unoccupied basement-room may be used for this purpose.†

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*F. Buisson, Rapport, p. 246.

It must be evident that with modification similar to those here proposed, our public school education would soon have a far higher industrial value. Pupils would be better equipped for the real business of life, and the State would derive a far higher remuneration for her patronage of the public schools.

No revolution in the existing order of things is contemplated; if in the end it proves to have been a virtual revolution, it must be a peaceful one. We demand only that our school system shall be allowed to grow, to reädjust itself to new conditions or to newly-felt needs. It is, of course, evident, that if a new study like drawing is to be introduced, and greater time given to these sciences named, there must be a corresponding curtailment in the courses of instruction as they now stand. The general nature of the modification herein contemplated is indicated in the following synopsis:

1. Drawing should be introduced into all the grades of our public schools, in city, village, and country.

As the successful introduction of a new study is usually attended with some difficulty, the following suggestions are offered in this connection:

A GENERAL PROGRAMME FOR THE STUDY OF DRAWING IN PUBLIC SCHOOLS.

PRIMARY GRADE.

First Year.

Oral instruction. Straight lines and angles. Combinations and groupings of straight lines and angles, partly dictated by the teacher, partly invented by the pupils. Outlines (elevations) of simple objects from blackboard drawings made by the teacher.

Second Year.

Oral instruction. Plane geometrical forms bounded by straight lines. Combinations and groupings of these forms, partly dictated by the teacher, partly invented by the pupils. Outlines of simple objects from blackboard drawings made by the teacher.

Third Year.

Copying from text-book representations of objects, bounded by straight lines. Original combinations and groupings of straight lines, angles, and plane geometrical forms, bounded by straight lines. Elementary geometrical Drawing, straight lines. Angles and plane forms bounded by straight lines, with pencil and ruler.

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*The *Bock-Steger models* cannot be too highly commended. They may be procured of B. Westermann & Co., N. Y.

†The chemical labratory connected with the Adrian High School was arranged on this plan, and as allowed to be one of the most efficient in the State. Information with regard to its general arrangement may be obtained on application to the Superintendent.

Fourth Year.

Copying from text-books representations of objects bounded by curved lines, or curved and straight lines. Original combinations of curved lines, or curved and straight lines. Elementary geometrical drawing. Curved lines and plane forms bounded by curved lines, or curved and straight lines with pencil and string.

GRAMMAR GRADE.

First Year.

Copying from text-books representations of common objects delineated by straight lines, with close attention to size and proportion. Construction of original designs with straight lines within plane geometrical forms bounded by straight lines. Elementary problems in practical geometry, using instruments.

Second Year.

Copying from text-books representations of common objects delineated by curved lines, or curved and straight lines combined, with close attention to size and proportion. Construction of original designs with curved lines, or curved and straight lines combined, within plane geometrical forms bounded by straight lines, or straight and curved lines. Elementary problems in practical geometry, using instruments.

Third Year.

Copying from text-books leaf, flower, and plant forms. Construction of original designs with leaf, flower, and plant forms within plane geometrical forms. Practical geometry.

Fourth Year.

Elements of perspective from copies in text-books. Geometrical solids and real objects. Construction of original designs, as in third year. Elements of shading. Practical geometry.

HIGH SCHOOL.

First Year.—First Half.

Drawing ornament from flat copies. Original designs. Geometrical Drawing.

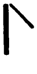
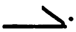
First Year.—Second Half.

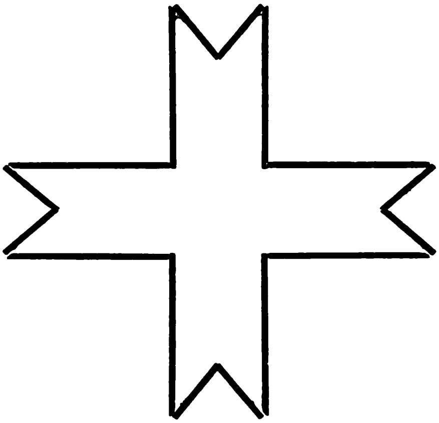
Drawing ornament from flat (shaded) copies and from casts. Original designs. Geometrical Drawing.

Second, Third, and Fourth Years.

Special courses at the option of the student, *e. g.*, Architectural, Mechanical, Engineering Drawings.

It will be noticed that the above course is divided into two distinct parts, the division occurring after the first year in the High School. For the first nine years, the course is general in character. The aim has been to include such subjects as will have a claim on the attention of all pupils, on purely educational grounds, without special reference to possible future occupations. At the same time it is believed that this course will furnish a fitting preparation for the special courses in the later years of the High School, or for special study in technical and art schools, and will possess high practical value for pupils who may not take up the special courses, or enter a technical or art school. By making this part of the course general in its character, instruction in drawing is made to harmonize with the other studies. It is no part of the work of the common school—understanding by that expression the primary and grammar grades—to educate specialists. It rather strives to give that general discipline and culture which fits the pupil for taking up the special studies which will prepare him for such special occupation as he may select. If drawing is to obtain and keep a place in the common schools, it must have the same general tendency as the other studies. Moreover, if successfully taught, it must be done by the regular teachers, and it is neither possible nor desirable that these should be specialists.

Our high schools, on the other hand, aim, as far as the limits of the time at their disposal will allow, to give each pupil that special training which he needs for his future work. Every high school curriculum comprises several distinct courses of study, offering to every student a choice within reasonable limits. The course in drawing suggested for the three closing years of the high school is intended to harmonize with this specializing tendency. The work of the first year is intended to confirm, systematize, and amplify the work of the primary and grammar grades, and to furnish the needed preparations for the special courses. It will be noticed that it includes two elements, free hand and geometrical drawing,—both equally essential to any successful pursuit of special work. There is no special free handwork which does not at times involve the use of the processes of instrumental drawing, and the converse is equally true. It is not to be understood that the species of drawing indicated for the latter years of the High School include all that may be taken up. As far as its means will allow, the High School should furnish each pupil with the means of following his or her special tendencies. As a rule it will permit facilities for young men in the pursuit of architectural, engineering, and other technical forms of drawing, while for ladies it will furnish opportunities for the study in its more artistic aspect. Of course it is not contemplated that either sex will be excluded from any course. But the probable tendency will be in this case as it is in other studies,—languages, for example. Just as the majority of the students of ancient languages are gentlemen, and of the modern languages ladies, so gentlemen will constitute the majority of those pursuing the more technical forms of drawing, and ladies of those pursuing its artistic forms. The instruction in the first and second years of the primary grade should be entirely oral. Pupils should first be instructed in drawing straight lines and angles. The teacher should then dictate to them combinations of lines; first of two lines, as vertical and oblique, gradually increasing the number and varying the kinds of lines. Parallel with these dictation exercises, the pupils should make original combinations. After a sufficient number of combinations have been obtained, they should be arranged in groups, alternately dictated by the teacher and invented by the pupils. The following will serve to illustrate this: A *combination* of a vertical with an oblique line may be made thus, ; of a horizontal with an oblique, thus, . These forms may then be grouped in alternate pairs, thus:



Accompanying these exercises in lines should be a course in drawing outlines of simple objects from examples placed by the teacher upon the blackboard. These examples should, in the main, be elevations; that is, the end or side of a table should be drawn, not an entire table, which would involve principles of perspective beyond the comprehension of pupils of this grade. Pupils should, for the most part, draw on slates, and should first determine the number and kinds of lines of which the copy is composed, and then draw them in a given order dictated by the teacher. Afterwards the example should be redrawn without dictation, but in the given order. Occasionally—say once a month—a drawing may be made on paper. For this purpose, ordinary manila paper will serve. Once a week pupils should draw from memory some previous exercise designed by the teacher.

The course for the second year is essentially the same, differing only in degree of complexity in the examples. More detail will be allowable in the examples placed upon the blackboard, while the exercises in combining and grouping will employ plane geometrical forms instead of, or in combination with straight lines. Drawing will still be on slates, though a more frequent use of paper may be allowed.

In the third and fourth years of the primary a text book may be introduced. The subjects for these years shall be common objects with which the pupil is familiar, and as a rule should be elevations, only occasional and easily understood indications of solid form being allowed. The original combinations and groupings should be the same in general character as in the preceding years, increasing, however, in elaborateness and being wholly the work of the pupils. Discrimination may be made between good and bad arrangements. Exercises in drawing from dictation and memory should be continued. Pupils should also be taught to contrast lines, angles, and plane figures with the aid of ruler, string, and pencil. The object of this exercise is to teach exactness, and it forms an elementary course in geometrical drawing. In drawing the examples from text-books, pupils must first analyze the example into its component lines as described in the work of the first and second years. Being provided with a suitable piece of manila paper, they should then draw the example on it, in an order dictated by the teacher. They should then repeat it on the same paper without dictation, and finally draw it in the text-book. Of course the judicious teacher will gradually accustom pupils to determine for themselves the order in which the lines should be drawn. The object of this mode of proceeding is to secure unity of work and a close study of the example before drawing it.

In the first and second years of the grammar grade, the text-book should be used in essentially the same way as in the primary grade. The use of manila paper must be continued, but the order in which lines are to be drawn is to be left more to the pupil. The relative proportions of the various parts of the drawing are to be carefully noticed, and frequent exercises in drawing the examples on enlarged and reduced scale must be introduced.

The exercises in original designing within plane geometrical figures must be preceded by a drill in dividing lines into given numbers of equal parts, and drawing lines of different relative lengths. A series of lessons should also be given embracing simple problems in practical geometry. This will involve the use of a few instruments,—a ruler, triangle, and bow compasses.

In the third year of the grammar grade, leaves, flowers, and plants should be copied from the examples in the text-books, and pupils must be encouraged to make direct studies from the real objects as a home exercise. The same directions as given for the preceding years apply here with a gradual decrease of the dependence of the pupil upon the teacher. The leaf, flower, and other forms learned in this grade are to be employed in the construction of the original designs. Practical geometry is to be continued as before.

In the fourth year of the grammar grade the elements of Perspective are to be taught. In addition to the examples of the text-book, the fundamental principles must be taught by the aid of a set of geometrical solids, and pupils must be given occasional home exercises in drawing simple objects, as books, boxes, cups, etc., from the real objects. The designing and practical geometry are to be continued. Toward the close of the year, lessons in the elements of shading are to be given.

It is the purpose of the exercises in designing with the leaves, etc., indicated for the third and fourth years of this grade, to lead up to the drawing of ornament in the following grades. Ornament is mainly composed either of combinations of lines and geometrical forms or adaptations of plant forms. Both will find a fitting preparation in the work laid down for the preceding years.

The instruction in practical geometry shall be given from the blackboard. Suitable examples for the purpose can be found in any geometry. The work of the high school has already been discussed.*

2. In the high school grade much greater prominence should be given to natural philosophy, chemistry, and physiology. In each of these studies the object should be to make the knowledge acquired available in the every day affairs of life. The principles of each science should be learned as thoroughly as circumstances will allow, and no opportunity should be lost to employ them in explaining ordinary phenomena.

Pupils should be taught to take advantage of the previsions of science as a means of escaping avoidable dangers, of making some improvement in existing processes, as well as of inventing new and better ones.

3. Less time should be given to spelling, geography, and grammar; zoölogy, geology, astronomy, mental and moral science, and perhaps rhetoric, should

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*While at the Centennial Exposition I requested Professor Devolson Wood to commend a system of Drawing which he deemed most worthy of introduction into the public schools of Michigan; and in answer to my request he has sent me a critical and highly commendatory opinion of Kusi's System of Drawing—(D. Appleton & Co., New York). This system has been adopted by the State Normal School.

standard of scholarship, the influence of the University has been wholesome to an extreme degree; while with reference to that kind of instruction which i the first need of the great mass of our people, its influence has not been helpful. The general spirit of the University is literary and professional; it assumes that its students are to become lawyers, clergymen, physicians, teachers, editors,. etc., etc. The inevitable consequence is that the high schools, which are closely connected with the University, must exert the same kind of influence on their pupils.

Under the existing state of things three courses are open to high schools:

(1.) A few, the very largest, may become classical schools, making the study of Latin and Greek the predominent purpose. Such schools are almost identical in character with the Continental Gymnasia.

(2.) A much larger number may make the study of science their leading purpose, approaching in their organization the Continental *Realschulen.* They will furnish a preparation for the scientific and Latin scientific courses.

(3.) Other schools, large or small, may pursue an independent course, basing their organization exclusively on the needs of the community in which they are severally situated.

It will seem to some that the first and second purposes may be combined; that the classical spirit and the scientific spirit may reign jointly. This case is barely supposable on one condition,—that the two varieties of instruction be given by distinct faculties, an arrangement which at present is wholly impracticable. A man eminently fit to teach natural sciences is eminently unfit to teach the classics; and schools which are eminently successful in one department, necessarily encroach on failure in the other. This is not a speculative belief. The plan of coalition has been thoroughly tested, and has invariably failed.* Even when these two departments of knowledge are taught by two distinct faculties, as in the University, one spirit or the other will hold the ascendancy.

This discussion of incompatibilities leads to a brief consideration of the final topic. To what extent should general culture be carried in schools which have a distinct industrial aim? Without entering on a general discussion of this topic, we shall find food for reflection in authoritative answers to the question. Italy is reörganizing her school system on the basis of industrial education, and an article on the Reörganization of the Technical Schools," † furnishes the following quotation bearing on this question:

"The special purpose of technical schools is to prepare pupils for entering at once on some chosen vocation. Hence the branches of study to be retained are those which will communicate some ability in this line; while the studies suppressed should be those which pertain to general culture. Even though an accountant may know nothing of the life of Petrarch or of the verses of Achillini; though he cannot interpret Dante and is ignorant of the exploits of Charlemagne, this will not prevent him from practicing his art with advantage to himself and to others. I will add that he who shall have acquired marked ability in his calling will preserve a greater inclination to study than those who have become cloyed with a great amount of ill-digested knowledge; at his leisure, and according to his tastes, he will learn better than the others whatever can be acquired without the aid of teachers and school."

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*For detailed statements on this topic the reader is referred to the *Revue des deux Mondes, 15 Juin, 1875.*

† *Riordinamento degli Istituti in Italia* (Luigi Rameri), La Rivista Europea, Novembre, 1876.

France has just reörganized her system of agricultural instruction on the following basis:

(1). Primary instruction in the *Fermes Ecoles*, of which there are at present 33. "This is the primary school of agriculture, destined for farmer's sons and agricultural laborers who here serve a sort of apprenticeship. * * * In such schools theory is reduced to almost nothing, the practical is everything."

(2). Secondary instruction in the *Ecoles Regionales*, now three in number. "What is here required is not the elementary and purely practical instruction of the *Ferme-école*, but advanced instruction in which practice and theory are combined. * * * In these schools young men, who may one day be called to direct, as proprietors or agents, enterprises of considerable extent, are accustomed to the art and responsibility of superintendence."

(3). Higher instruction in the *Ecole Centrale*. Here the purpose is to train, not laborers and practical workmen, but professional agriculturalists, by the study of the sciences as they bear upon agriculture, for this is the object of the institution by the terms of the law. Hence the instruction is very advanced, very general, theoretical and scientific before everything else. Too much of the practical might be a disadvantage.[*]

The course of study, purely scientific, is completed in two years.

The discussion thus far pursued leads to the following conclusions:

(1). The course of instruction in our public schools should be simplified,—it should be more intensive, less extensive.

(2). A greater amount of useful knowledge should be communicated,—useful as distinguished from the disciplinary or remotely serviceable.

(3). Technical education and a general literary culture serve two distinct purposes, and they cannot be carried on simultaneously without mutual disadvantage.

V.—THE NATURE AND EXTENT OF THE PROVISION MADE IN MICHIGAN FOR THE PREPARATORY TRAINING OF TEACHERS.

When we have settled, both in general and in detail, what the education of the people ought to be; when we have provided houses, apparatus, books, and generous sums for the payment of teachers, even then the vital question, the very turning point of success, is, How shall our schools be furnished with educated, cultured, and skillful instructors? All thinking people are now willing to admit that teachers should have some kind of technical training, some degree of professional education; but a careful survey of what has been done towards the accomplishment of this object will show that our progress has been tentative, halting, and, on the whole, unsatisfactory. Our situation in this respect may be described in general terms as follows:

(1.) We have no educational science, no established first principles to serve as criteria for estimating the validity of our methods; and, worse still, there is extreme skepticism, even among prominent teachers, as to the possibility or even utility of such a science.

(2.) In actual practice empiricism is largely dominant as a rule, teachers enter upon their duties with no critical knowledge of methods, and with no comprehensive notion of the nature and purposes of education.

When, with these facts in mind, we read the list of the one hundred and thirty normal schools reported by the Bureau of Education,[†] we are forced to the conclusion that there must be some organic defect in this branch of the public service.

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[*] L'Enseignement de L'Agriculture. Revue des deux mondes, 15 Septembre, 1876.

[†] Educational Conventions and Anniversaries during the summer of 1876,—Washington.

In the discussions which took place at Philadelphia among the commissioners of education, home and foreign, the most earnest thought was bestowed on this question of prime importance; and in this concluding portion of my report, I shall attempt to interpret and apply the lesson which issued from these debates touching the preparatory training of teachers. My plan of discussion leads me to consider the following questions:

1. What is the nature of the preparation which teachers should make for their specific duties?
2. Under what circumstances, and to what extent, is a State justifiable in providing, at public expense, for the professional education of teachers?
3. To what extent has Michigan furnished her teachers with facilities for normal instruction?
4. What additional facilities for this object do we require, and how may they be most completely and most expediently applied?
5. What means should be taken to stimulate teachers to make use of the helps which are provided for them by the State?

1. *What is the nature of the preparation which teachers should make for their specific duties?*

Every art has a system of rules or processes whereby the ends contemplated by such art are to be attained; and a technical education, of whatever kind, consists in learning the rules, processes, or methods which will impart skill in a specific line of industry. This technical skill may be acquired in three ways: (1), *empirically*, by proceeding at once to the practice of an art, and thus learning its processes by experience; (2), *imitatively*, by observing methods as they are employed by others, or, in other cases, by serving an apprenticeship under a skillful master; (3), *rationally*, by first learning the science which underlies the given art.

The first process precludes the very idea of *preparation*, and therefore has no place in this discussion. It is worth noting, however, that, historically, empirical art precedes science. Rules, even, cannot be drawn till enough cases have accumulated to serve as a basis of generalization; much less can laws be discovered which, collectively, constitute science, and make possible a rational practice. The condemnation of the empirical method, as a rule of practice, lies in the fact that it involves a continual relapse into barbarism. The very condition of human progress is that each generation employs the heritage of knowledge left by the one which has preceded. The order of instruction is the very reverse of the order of discovery.

The *imitative* process is strictly preparatory. It takes advantage of accumulated experience and acquired skill, and thus eliminates the chances of error and failure, and furnishes the beginner with an available capital for a fair start in life. This kind of preparatory training does not consist merely in precept or observation, but may consist in actual practice under the eye of an accomplished master. The mechanic arts are learned by this double process,—a close observation of work skillfully done, and a gradual introduction into actual practice under the supervision of a master workman. A characteristic of this kind of preparation is that it does not necessarily imply scientific knowledge. Simple art asks only *how;* pure science only *why;* applied science both *how* and *why*.

The third mode of instruction is preparatory in the highest degree. Every true art has its correlative science, or body of natural laws, which underlies its processes. The enunciation of a law is, as it were, a description of the route over which effort travels towards results. A knowledge of natural law, therefore, enables us to foresee the consequences of given antecedents, or to ascribe effects to their probable causes. In the first case, science confers on us the power of prevision, which enables us both to avoid mistakes and to invent new processes; in the second, the power of revision, which helps us to correct mistakes and to improve the processes in actual use. Science thus involves art; it explains by implication all its processes, both actual and possible. He who has learned a science, therefore, has learned, potentially, its correlative art; and as the principles of a science are few and capable of exact definition, while the processes to which they give rise are numberless, it follows that the most economical method of learning an art is first to learn the science which is its foundation.

Like all arts, teaching has its own processes, and a preparation for its duties requires instruction in the nature and use of these processes. This knowledge may be acquired, on the *imitative* plan, through observation, precept, or apprenticeship; or *rationally*, through an understanding of educational science. In every organized industry there is a subordination in duty and rank which gives rise to two orders of labor, and therefore makes necessary two orders of preparatory knowledge. To a few is assigned the duty of organizing and directing: to the many, the duty of working out prescribed plans. The few need the comprehensive knowledge of science; the many must have expertness in practice. A parallel fact of great significance is that while almost every one can acquire manual dexterity or practical skill, only a comparatively few have the executive ability, and philosophical turn of mind conferred by nature, and the intellectual acquirements secured by long study, which together constitute fitness for the labor of direction.

These two principles have a controlling and well marked influence on the profession of teaching. In it are the two marked varieties of labor,—that of organizing and supervising, and that of devotion to practical details; scientific knowledge is the necessary preparation for the higher grade of duties, and practical skill for the lower.

Thus far no express mention has been made of the literary qualifications which must form one factor of the teacher's preparation. The distinction between material and formal conditions of success has been assumed. Military training presupposes physical strength, and devotes itself to the task of teaching the art of using that strength for a specific purpose. Similarly, normal instruction, pure and simple, presupposes scholarship, and consists in communicating the methods by which such scholarship may be employed to the best advantage in the education of the young. In practice it has been found necessary to carry on the literary and the technical, or professional, education of teachers simultaneously. The true function of a normal school, however,—its *raison d'être,*—is to communicate the formal element of a teacher's preparation,—the knowledge of methods. With respect to its purely academic courses it is not distinguishable from other schools, has no rights or prerogatives which are not common to all other schools.

In this connection we must not lose sight of a fact of capital importance, though one which has been constantly overlooked in many discussions of this question. Every school is of necessity a normal school. The truth of this proposition will become evident when we reflect that a school must necessarily impress its methods on its pupils; matter and method, the material and the formal, are inseparable. The avowed object is literary and scientific instruction; but as the pupil is the subject of the teacher's art, he cannot escape the impress of the teacher's methods. The real fact in the case does not lose its significance from the circumstance that this instruction in method is unconscious. If a pupil who had never had a thought or purpose of becoming a teacher is unexpectedly placed in charge of a school, the normal training he has unconsciously received is at once turned to practical account.

The limitations to which this mode of normal instruction is subject are obvious. It will be good or bad, helpful or harmful, according to the quality of the school from which it issues. If the school is skillfully organized and well taught, and if the methods are made the subject of critical study by any portion of its pupils, it is to this extent, in the best sense of the term, a normal school for the training of teachers for the lower grade of work already mentioned.

If the reasoning which has been pursued in the main part of this paragraph is correct, it leads to the following conclusion: The preparatory training of teachers should consist of two grades, adapted to the needs of the two well marked grades of school work:

(1.) Instruction in the principles of educational science, in connection with an advanced academical culture, as a preparation for the work of organizing and supervising schools and school systems.

(2.) Instruction in methods, in connection with an academic course of study *considerably in advance of the grade of instruction to be given*, as a preparation for subordinate positions.

2. *Under what circumstances, and to what extent, is the State justifiable in providing, at public expense, for the professional education of teachers?*

Men associate under a form of government in order that they may do, by their united resources, what could not be done otherwise; and the aid of all may be invoked, whenever it is clear that the general good requires such coöperation. In case of a defensive war, it becomes a national duty to provide means for the common defense, because such provision involves the nation's existence. If the material prosperity of a State is held in check through the lack of some one industry, it becomes a public duty to assist such industry until the ordinary laws of supply and demand render the new enterprise self-sustaining. General education at public cost is justifiable, because the preservation and progress of our form of government are conditioned on the general intelligence of the people.

But good schools cannot be maintained without efficient teachers, and hence there may be circumstances in which the training of teachers at public charge becomes a public necessity. Normal instruction at the public expense is, doubtless, justifiable in the following cases:

(1.) When there are no schools of high grade where teachers may obtain that degree of academic instruction which is necessary in their calling.

(2). When the current methods of teaching and of general school management are obsolete or poor to such an extent that their renovation becomes a public necessity.

(3). When there is need of introducing into general use either a new branch of learning or some new system of instruction.

(4). When the necessity is felt of cultivating educational science as the means of placing the system of public instruction on a rational basis.

The first and second cases occur in newly-settled States or in older States, where, for whatever reason, good schools do not exist in sufficient number, or where the current methods of instruction need revision.

The third case is liable to occur in States which are most progressive, which are most prompt to incorporate a new element essential to the general good.

The last case is that of every State which has a system of public instruction to perfect or even to keep from retrogression. "Progress is propagated from above downwards, and this even to the farthest limits, for science never ascends."[*]

State aid once furnished may be relaxed just in proportion as the need which justified it is supplied by other agencies. The constitutional cure of the ills arising under the second and third cases will ultimately be found in promoting the growth of educational science, and this because they are the consequences, near or remote, of the ignorance of those who occupy the places of chief influence. When the building of a vast and costly edifice is in contemplation, the most economical expenditure of money that can be made is in the employment of a competent architect. Skill, at this point, propagating its influence downwards through overseers, master-mechanics, and workmen, will introduce economy and accuracy into every feature of the work.

3. *To what extent has Michigan furnished her teachers with facilities for normal instruction?*

(1.) One normal school.

(2.) An annual appropriation of $1,800 for teachers' institutes.

The normal school was founded in 1849. At that date there were only six graded schools in Michigan: Adrian, Detroit, Hillsdale, Jonesville, Pontiac, and Ypsilanti. The facilities for sound academic instruction were thus very meager. Considering this fact in connection with the rapid increase of population and the urgent need of primary schools, the wisdom of the Legislature in endowing this special school is apparent. Whatever short-comings may be charged against normal schools in other respects, many of them have thus afforded relief from pressing needs, and have embodied and kept alive the idea that teaching is an art which may be communicated, and which should be learned by every one who proposes to devote himself to work in the public schools. Our Normal School has done this work for Michigan, and for this service it deserves the gratitude of every friend of popular education. At least, in an earlier day, it supplied the State with a limited number of better teachers than would otherwise have been placed in charge of schools. Moreover, during its whole history, it has created a demand for students, and while bestowing on many the opportunities for acquiring a fair education, it has induced some to adopt the profession of teaching who would otherwise have chosen a different vocation.

It is plain that any contemplated readjustment of our normal system should be based on the state of our educational affairs as they exist to-day. A line of policy which was justifiable and eminently useful in 1849 may, by the very progress which it has stimulated, have lost much of its value in 1877. The Report of the Superintendent of Public Instruction for 1875,[†] p. lxv, shows that there are now in Michigan two hundred and sixty-six graded and high schools. Granting that only one-third of these are thoroughly organized and efficiently managed, we see that vast progress has been effected in the dissemination of facilities for higher education within the last twenty-seven years.

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[*] Le progres se propage de haut en bas, et cela jusqu' aux derniers limites, car la science remonte amais.—Boussingault.

[†] As this is the latest printed report from this department, the statistics which I have employed in this discussion are necessarily borrowed from it.

A fair idea of the amount and quality of the work which the Normal School is doing, may be estimated from the following facts:

(1). It graduates, on the average, about sixty pupils each year. The whole number in attendance during the year 1875 was 409, and their average age 19.1 years.

(2). Its academic courses of instruction are, as nearly as may be, the equivalents of those which are followed in our public high schools.

(3.) Professional instruction, embracing psychology, methods of teaching and governing, school organization, etc., is given by lectures.

(4.) There is a model school and an experimental school, in which classes are taught by students detailed for the purpose.

This school has had more than twenty years[*] in which to perfect its organization and methods; it has been generously supported from the public treasury, and has therefore had the most ample opportunity to give practical and permanent evidences of its public utility in the line for which it was endowed. It is now working to its utmost capacity, and its administration is in the hands of experienced and enthusiastic teachers, who are doing their utmost to give the State an equivalent for the expenditures made in its behalf. Notwithstanding all this, the net results are vastly out of proportion to the needs of our school system. It is not necessary to attribute these shortcomings to any defect in the internal management of the school; they may be sufficiently explained by noticing some of the limitations to its usefulness by external circumstances.

(1.) *Its working capacity is insufficient.* The State now employs more than twelve thousand teachers. To supply the deficiencies caused by death, removal, failure, marriage, and change of employment,—a deficiency which cannot be estimated at less than three thousand each year,[†]—the Normal School can at best furnish an annual contingent of one hundred. Assuming, contrary to all probability, that all these teachers succeed to vacant places, and including in our list of recruits the nearly seven hundred pupils who receive normal instruction in high schools, there are still at least two thousand teachers who annually enter upon their work without any special preparatory training.

While these statements exhibit with unmistakable clearness the inadequacy of our present facilities for normal instruction, they become doubly suggestive when we consider how short is the tenure of office even of those who have formally devoted themselves to the business of teaching. About two-thirds of the assumed one hundred graduates will be women, and it is needless to name the causes which will very speedily call them to other spheres of duty; while statistics show that the superior attractions of other branches of business quite as rapidly call young men from school-room duties. Under these circumstances, the State is a modern Sisyphus, for whom each year renews the burden which had been already lifted with such toilsome effort.

These facts are not urged as an argument against normal instruction; they are presented in order to show a public need, and to explain why this need is so great.

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[*] Its first class was graduated in 1854.

[†] This estimate is based on statistics derived from graded schools, and is doubtless considerably too low, for the obvious reason that in such schools situations are comparatively permanent. Exact information on this point would be extremely instructive. It is to be wished that those who have such interests in charge would take measures to collect information bearing on this and similar subjects, which would shed floods of light on questions of the greatest import.

(2.) *The grade of academic instruction afforded by the normal school excludes its graduates from those positions where their special qualifications have the widest field for use, and, consequently, where the State would be most largely remunerated for the expense incurred in their training.*

In point of literary ability, graduates from our high schools and graduates from the Normal School are on very nearly equal footing. What is the ground, then; for any expectation that Normal graduates will be called to those places where professional skill is most needed, and where it would be most remunerative? That higher knowledge which we may fairly assume is communicated by the Normal School is surely most needed in the organization and supervision of graded schools, for it is chiefly here that such knowledge can be freely turned to practical account; but, as has been shown, there are the best *a priori* grounds for believing that this professional school cannot extend its influence in any considerable degree to the larger graded schools of the State.

If any confirmation of this declaration were required, it may be found in the actual administration of our graded schools. The Report of the Superintendent of Public Instruction for 1875 gives the following list of schools as in charge of Normal graduates. Opposite each is placed the number of assistant teachers:

Algonac	3
Belleville	2
Brooklyn	2
Carrollton	2
Calumet	13
Climax	1
Decatur	6
Detroit	221
Dowagiac	7
Flat Rock	2
Flint	28
Hancock	2
Howell	8
Houghton	10
Kalamazoo	46
Lapeer	11
Ludington	6
Mason	6
Manchester	4
Midland	3
Mt. Clemens	5
New Troy	1
Otsego	5
Stanton	4
Sparta	1
Tawas	2

In order to bring out the full significance of this presentation, there follows a list, derived from the same source, of an equal number of schools not in charge of Normal graduates:

Adrian	30
Allegan	9
Ann Arbor	34
Battle Creek	26
Charlotte	10
Chelsea	5
Coldwater	20
Constantine	7
East Saginaw	51
Grand Haven	16
Grand Rapids	72
Hastings	8
Hillsdale	13
Ionia	13
Jackson	47
Lansing	27
Manistee	18
Marshall	19
Muskegon	20
Niles	19
Pontiac	17
Port Huron	24
Saginaw	33
Sturgis	9
Tecumseh	10
Ypsilanti	20

These statements should be considered in connection with the obviously essential fact that trained skill here comes in competition with untrained skill, and that the odds are strikingly in favor of the latter.

This comparision is intended simply to verify a conclusion which seemed to be legitimately drawn from the fact that the course of study pursued in the Normal School does not prepare its graduates for those positions in which the State may derive the best returns for the expense incurred. This limitation to the usefulness of the school is organic; there is no escape from it save by reörganizing it on the basis of a University. The facts mentioned do not reflect the least discredit on the internal administration; but are presented in order to assist in forming a correct judgment of the kind and amount of service which this institution is capable of rendering.

(3.) *The higher professional instruction is communicated to pupils at an age when a subject so necessarily abstruse can only be very imperfectly comprehended.*

The basis of a rational science of teaching is psychology; but this is a subject so abstruse that it is assigned to the senior year in the University curriculum; any real proficiency in this science on the part of Normal graduates who are but just prepared to enter the University is therefore out of question. But when the principles of psychology have been learned, the science of teaching only begins. This professional instruction, admirably planned as it is, and diligently taught, must necessarily fall far short of its object.

Here, again, is another serious obstacle lying right across the path of our progress towards improved methods of teaching. In this case, as in the one last mentioned, the defect is constitutional; there is no relief save in a reorganization.

The organic limitations thus far pointed out justify the following statement. On a chart which should exhibit the public school system of Michigan, the line of Normal influence would fall just below the grammar grade, slightly within the high school grade. That this line is not arbitrarily drawn is shown by the fact that, though the organization of the school has been perfected through an experience of nearly a quarter of a century, and its internal management has been intrusted to the best obtainable talent, its graduates have not passed the limit indicated.

It remains to inquire what peculiar advantages the Normal School affords for the education of teachers for work below this line. The opportunities for second academic instruction are unquestionably good. The only way of giving instruction in the art of teaching which is really practical under all the circumstances is the one described above as the *imitative*. In the normal school instruction of this kind may be derived from the following sources:

(1.) Didactic instruction given by lecture, under the general title of professional instruction.

This instruction in methods will be eminently useful, provided two mistakes be not made: (1.) Instruction by lecture simply is almost necessarily superficial and unproductive; to be really valuable it requires two conditions,—a large amount of original knowledge on the part of the instructor, and on the part of the learner an eager desire to know, combined with well trained attention, memory, and reflection. (2.) The instruction itself may aim too high; with a view to give it solidity and comprehensiveness, it may be so abstruse as to be beyond the capacity of the learner.

(2.) Methods of instruction as employed in the school itself.

Just so far as the methods of teaching, discipline, and general management employed in the Normal School, and in the model school, are worthy of imitation, they are the sources of the most valuable training. Unless care be taken, however, to broaden the views of pupils, to encourage versatility, to inculcate the duty of adapting arrangements to existing circumstances, the exact classification and rigid discipline of the school may prove a real obstruction. The impression should be left on the pupil's mind that the instruction he has received is at best but preparatory; that he has still to learn his art by dealing with details, which often require wide modifications of the general method which he has learned.

(3.) Practice in the experimental school.

This school will be a source of good, provided the students who practice in it are subject to the constant supervision and criticism of accomplished teachers; but of positive evil to teacher and taught, if this oversight be not maintained. This pupil-teaching is gratuitous labor in addition to the ordinary work pursued in the school; and, in consequence, there is almost entirely wanting that element of personal interest which usually inspires success. Unless there be the artificial stimulus of critical supervision, such practice-teaching is worse than useless.

Such is an unbiased statement of the kind and amount of aid which our Normal School is capable of rendering to the State. I have sought to attain two objects in this analytical examination: (1.) To establish a basis of comparison whereby means may be devised for supplementing our existing facilities for normal instruction. (2.) To indicate a way by which the Normal School may be strengthened to do a still greater amount and higher quality of good. The criticisms offered are directed solely against the institution as an organization, not against its administration, past or present.

In the use of the second agency for promoting the technical education of teachers, the teachers' institute, we have much to learn. The condition of Michigan in this respect may be best described by saying that our institute work has never been organized. Not only is there no system for determining time and place, but none for insuring the kind of instruction which is most valuable for the purposes intended. The obvious defects in the law which permits the holding of institutes are the following: *

(1.) The law is permissive merely, not mandatory. The Superintendent is "authorized" to appoint an institute if "reasonable assurance" is given that fifty, or, in some cases, twenty-five teachers desire to assemble for this purpose. What class of teachers will be most likely to petition the Superintendent for an institute? Evidently the most spirited, the most progressive, those who are most thoroughly in earnest; in a word, the best teachers, the very ones who need such aid the least. The great value of the institute lies in the fact that, being a movable normal school, it may be made the most efficient instrument to arouse enthusiasm in educational matters, not only among teachers, but among the people at large. If intelligently employed for this purpose, there is no agency yet devised which is capable of doing so much good.

(2.) Its provisions are insufficient.

The law now allows the annual expenditure of $1,800 for this purpose. With this sum, eighteen institutes per year have usually been held. Each county in the State having twenty schools should have its annual institute, conducted by the State Superintendent, or by some competent person whom he shall appoint for this purpose.

(3.) The law supplies no motive stimulating teachers to attend these institutes. The indifferent, and, as a rule, the incompetent, do not patronize them. If absenteeism, without an excuse satisfactory to the Superintendent, were to be made a bar to a license, the usefulness of the institute would be very greatly extended. In this matter the example of Wisconsin is highly instructive, and the following quotation is presented in order to show the manner in which this mode of normal instruction may be organized:

"The State is divided into four institute districts, and one professor in each

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* Since this Report was written, the Legislature has authorized the holding of County Institutes and of a general Central Institute, each year.

Normal School is permanently set apart for the conducting of institutes in certain portions of the year. The spring institute campaign extends from about the middle of March to the first of May; the fall campaign comprises the months of August, September, and October. At these times, the four conductors are constantly in the field; and in the month of August, and to a limited extent at other times, other qualified persons, principals of high schools, etc., are employed in conducting institutes. The number of institutes held is not far from sixty yearly.

"The usual length of the institutes is four or five days, but those of two weeks in duration are quite common, and, in August and September of each year, a number are held of four weeks each. For each of these long-term or normal institutes, as they are termed by way of distinction, two conductors are furnished by the board of regents; to the shorter ones but one conductor is sent.

"The county superintendent is required by law to hold at least one institute each year in his county. He determines the place and, so far as practicable, the time of the meeting; applies to the State Superintendent, who is chairman of the institute committee of the board, for aid in conducting his institute; gives the public notice, and labors personally to get his teachers together. In the institute he is the executive officer—it is *his* institute—and, when able, he also takes part in the work of instruction.

"Enrollment blanks, blank registers and reports, and small note-books for the use of the members, are furnished by the board.

"The registers and reports are kept in duplicate, one copy being forwarded to the State Superintendent, and the other kept on file by the regular conductor of the district in which the institute is held.

"The board pay the salaries and expenses of the conductors and the expenses of the lecturers. Other expenses are properly a charge upon the county.

"The assignment of conductors to particular localities for work, and the final arrangement of dates, is made by the institute committee of the board after due consultation of all interests.

"In July of each year, a conductors' meeting is held, to which come all the conductors, both regular and occasional, for consultation and work. One of the results of this meeting is a well digested syllabus, or course of study, for the long-term institutes. Greater system and uniformity of method also result, with greater enthusiasm in the work and more of the professional spirit. The conductors' meeting has come to be considered one of the educational institutions of the State.

"It is no exaggeration to say that probably no part of the whole educational system of the State has more firmly intrenched itself in the confidence and esteem of the people than the institute work under the present system." *

4. *What additional facilities for normal instruction are needed, and how may they be best supplied?*

The facts adduced in the preceding discussion leave scarcely any doubt on two important points: 1. There are absolutely no facilities in Michigan for studying the science of education, for learning the rational art of conducting school systems, large and small, in general and in detail. 2. Facilities for the instruction of teachers on the *imitative* plan, for services in subordinate positions, are vastly out of proportion to our imperative needs. These two statements sufficiently discover our needs. The manner of solving what has been

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[illegible]istorical Sketch of Normal Instruction in Wisconsin, pp. 100, 101, 102. Albert Salisbury.

called the normal problem will be best apprehended by a more minute analysis of the nature of these two orders of professional knowledge. The following synopsis will exhibit the outlines of the science which must form the subject matter of instruction for the higher professional education of teachers:

SCIENCE OF EDUCATION......	1. Critical, as based on...	Psychology. Physiology. Governmental Policy.
	2. Historical, as based on	Types of Civilization and Systems of Education.

This science is deductive. It is based primarily and chiefly on psychology, to a considerable extent on physiology, and in some measure on the established forms of government. There are certain uniformities of mental action which determine (1) the mode of apprehending, elaborating, and retaining knowledge; (2) the order in which the intellectual faculties are developed. As the brain, to which has been assigned the functions of thinking, is a physical organ, the processes of thought depend to some extent on physiological laws. As one purpose of popular education is to fit pupils for the duties of citizenship, the kind of instruction to be given must depend in some measure on governmental policy.*

A necessary corrective to any false deductions which may be thus drawn will be found in an examination of the results of the unconscious development of peoples and nations. Certain difficulties, the source of possible errors, are inseparable from a study of the individual mind. Educational science must be based on the constitutional activities of the human soul, not on what may be accidental or transient. Now, as the basis of national life is the individual soul, only those mental activities which are constitutional will persist throughout a nation's history. The accidental or transient will be left behind to perish. History thus records, in the boldest character, the actual results of psychological laws; and the lessons of history, interpreted in this light, are a necessary check on any false assumptions which might otherwise vitiate educational science.†

This being the general nature of the study needed for the training of educators, it is not difficult to prescribe the conditions necessary for its pursuit. They are as follows:

(1.) On the part of the instructor: A mind of great comprehensive power, a natural relish for rational knowledge, profound scholarship in mental science, and a full knowledge of the condition and needs of schools and school systems.

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* L' art de former des hommes est, en tout pays, si etroitement lie a la form du governement, qu' il n'est peut-etre pas possible de faire aucun changement considerable dans l'education publique, sans en faire dans la constitution meme des etats. Helvetius.

† What is psychological analysis? It is the attentive observation of facts which constitute human nature. These facts are complicated, fugitive, obscure, scarcely apprehensible by their very intimacy; the consciousness which is applied to them is an instrument of extreme delicacy: it is a microscope applied to things infinitely small. But if human nature manifests itself in the individual, it manifests itself also in the race. And what is there in the race, except the elements which are in the individual, with this difference, that they are there developed on a greater scale, and that consequently they are there more visible? The development of the human race in space and time is history. M. Victor Cousin.

(2.) On the part of the learner: A relish for philosophical studies, a good degree of general scholarship, and a mind of considerable maturity which has been trained into habits of exact thinking.

If the nature of this science, and the conditions necessary for its pursuit, have been correctly stated, it follows of necessity that our educational system furnishes facilities for its cultivation only in the State University, and even here only in a post-graduate course.

Are there valid grounds for asking State aid in cultivating the science of education? The following considerations are deemed a sufficient answer.

(1.) Up to this time, progress in the educating art, whether in individual teaching, in simple schools, in state or national systems, has been made on the *imitative* plan. When the need of improvement has been felt, the almost universal method has been to study neighboring systems, and to borrow from them such features as seemed to be worthy of imitation. When France awoke to the need of reform in her schools, Cousin was sent to Prussia and Holland; England has sent her scholars to the Continent for a similar purpose; America goes to Europe; Michigan consults New England. Primarily, this is the only practicable mode of progress; at all times it is valuable, but it is unscientific, and it is not in keeping with modes of progress in nearly every other great enterprise. Originality, not imitation, is the characteristic of the scientific spirit, which is the spirit of the age. Science presupposes and makes possible departures from the beaten track, invents new methods, perfects old ones, reaches predetermined results by shorter routes, and with greater economy of time, labor, and money. The educating art, the highest and noblest to which human genius can aspire, is still in its infancy, Many of its processes are faulty; some of them are thoroughly bad. It is invaded on every side by the rankest empiricism, and its strongest support is a generous enthusiasm, blind but hopeful.

(2.) The graded schools of Michigan have an organic connection with Michigan University. The inevitable consequence of this fact is that, as a rule, the positions of greatest influence in our public school service will be filled by University graduates. This is the fact to-day, and everything indicates that this will be a fact of growing importance. In view of this undeniable fact what can be more reasonable, more consonant with an enlightened public policy, than to establish a Chair of Education in the University, as has been done in the University of Edinburgh?[*]

While admitting the eminent propriety of such a measure, the objection may occur to some that in realty such a science as that described does not yet exist, or at least has not been definitely organized. This statement is very near the truth, but the fact which it expresses is a capital argument in favor of establishing such a chair. Let Michigan aid in organizing such a science. Its materials exist in abundance, and only that concentration of effort in a special subject of inquiry, which can scarcely be attained save in a great University, is required to lay the foundation of a rational system of public instruction.

(3.) In providing for the preparatory training of the more numerous class of teachers, attention should be given to the following circumstances: As a rule those teachers are transient members of the service; they do not enter upon the work of teaching with the intent to make it the serious business of their lives, but rather as a temporary employment to be followed till marriage, or some other change for the better intervenes. This very large transient element in our teaching force is little short of a national misfortune. It creates instability in our schools, especially those of the lower grades, and breaks the continuity of progress which can be secured only by a life-long devotion to a chosen field of labor.

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[*] Chair of Education, University of Edinburgh; Inaugural Address by S. S. Laurie, A. M., Edinburgh, 1876. The inaugural address by Professor Laurie * * * marks an epoch in the history of education. Westminster Review.

The only constitutional remedy for this evil is the gradual enobling of the teacher's calling until it becomes a recognized profession, which shall secure to its members the prerogatives, emoluments, and honors which the learned professions confer. The first step towards this end is to supply the art of teaching with a scientific basis, as indicated in the above. This will at once open a field for the exercise of professional skill, and this skill will create a distinction between rational and empirical practice which will tell in favor of professional emoluments; while the assurance of a fair income will attract to the business of teaching that talent which is now diverted to the recognized professions.

But, for the present, the existing state of things must be recognized as a fact, and this fact will prescribe the following grade of preparation as the best which the great mass of teachers can be expected to make under existing circumstances:

(1.) A course of academic instruction such as our better high schools afford.

(2.) Special instruction in the science and art of teaching, based on a text-book and supplemented, if need be, by expository lecture.

(3.) A careful observation of good models of general school management:

How may this kind of instruction be brought within reach of the great mass of our teachers? Some will doubtless reply, endow additional normal schools. But to solve the normal question effectually in this way would require at least twenty establishments of the kind named. A slight computation will show that such a scheme is more than Quixotic. A better reply, however, is that such a solution is unnecessary, even if it were not attended with such an insupportable burden of taxation. It is confidently believed that this grade of normal instruction, in all reasonable completeness, can be done by the high schools, without drawing a dollar from the public treasury. There are at least sixty such schools which can fulfill all the requirements named above with reasonable completeness. What needs to be done to enlist these schools in this work? Simply organize this branch of the public service. This organization might be effected in a very simple manner, as follows:

(1.) Let the Superintendent of Public Instruction be empowered to select the schools which may be willing to engage in this work, basing his choice on their general efficiency.

(2.) Let this office prescribe a uniform course of instruction in the science and art of teaching.

(3.) When pupils have completed a regular course of academic instruction for at least three years, and the supplementary course of special instruction, let the Superintendent of Public Instruction issue to such a license to teach for three years, such license to be renewed on examination and proof of success for successive periods of three years.

The report of the Superintendent of Public Instruction for 1875, pp. lxxvi–lxxviii, shows that work of this character has been voluntarily assumed by thirty-three high schools, and that six hundred and eighty-two pupils have been instructed in the art of teaching. With such facts before us, it is needless to debate the practicability of the scheme.

The impression should not be left that the grade of normal instruction designated as *imitative* consists simply in precepts, or in knowledge gained by observation and practive. It also comprehends just as much of the science of education as can be taught under given circumstances. In giving such instruction two extremes should be scrupulously avoided,—mere methods without mention of the reasons which underlie them, and mere enunciations of abstract principles. A middle course should be pursued. While laying great stress on specific methods, every proper occasion should be taken to develop powers of versatility by pointing out laws which underlie general methods. In a word, the rational element should be developed as far as the acquirements and ability of the pupil will permit.

The project here advocated leaves untouched the status of the Normal School. Its career of usefulness will be unaffected, and it may even earn new claims to public confidence by devoting attention to some special work which is urgently needed. If, as it is to be hoped, industrial drawing becomes a universal branch of study, the training of teachers in this art will be an inestimable public service, which can be most appropriately done by a school like the Normal, specially endowed by the State. The signs of the time also indicate a growing interest in kindergarten culture. This, too, is a work which can be most efficiently done in a special school.

5. *What measures should be taken to stimulate teachers to make special preparation for their duties?*

With a comprehensive scheme of normal instruction fully established, the general education of our teachers would not be secured unless there be created a motive constantly stimulating them to become better prepared for their duties. Under present circumstances, what motive has the average teacher to make any special preparations for the duties of the school-room? On the average the period of service is short. In very many cases teaching is resorted to as a transient occupation, as a ready means of recruiting one's resources. Again, in the matter of license to teach, there is scarcely any discrimination in favor of superior accomplishments. The more than 900 township superintendents whom the State invests with the power of granting licenses, are, on the whole, scarcely superior in point of qualification to the candidates whom they examine. Should any township inspector, moved by a high sense of duty, refuse a license even to rank cases of incompetence, these disabilities can be promptly and easily removed by an appeal to a neighboring inspector. At present there is no effective agency at work stimulating teachers to reach higher degrees of qualification; so that if normal schools were to be multiplied in the manner proposed this agency would fail to accomplish its proposed object, unless supplemented by a system of supervision and inspection which would gradually raise the general standard of qualifications. If teachers were assured that only acquirements of a specified grade would secure a license to teach, they would at once adopt the means which would most effectually meet the new demand. If the State desires better qualified teachers, it must supply an adequate motive for becoming such. One of the lessons most clearly taught by the educational exhibit at Philadelphia was the supreme importance of skillful supervision in every department of school work. In this respect the school law of Michigan is strikingly defective: virtually it abandons the country schools, in which the mass of our population must be educated, at the very point on which the success or failure of the whole system turns. The law furnishes houses which are models of taste and comfort, and provides ample means for the pecuniary support of the schools, but still makes no adequate provision for placing competent teachers in charge of them. As a necessary consequence, if our country schools are not deteriorating, as many competent to judge affirm, they are at least making no progress.

The Dominion of Canada affords an instructive example of the manner in which wise supervision may raise the condition of the entire school system of a country. Questions employed in the examination of teachers are prepared by the Central Board of Examiners for simultaneous use throughout the province. These questions, accompanied by minute instructions, are transmitted in sealed envelopes to every inspector, and are opened only at the moment when the examination begins. Candidates whose papers have a prescribed value receive a license, while those who fail have but one of two things to do, either abandon the business of teaching or make the needed preparation for its duties. Some of the manifest advantages of this system are the following:

(1.) It establishes a uniform standard of qualification throughout the several grades of schools.

(2.) This standard of qualification may be gradually and uniformly raised.

(3.) There is no escape from the rigor of this inquest..

(4.) Teachers are obliged to make use of the means which the law provides for their education and training.

The practical effect of this simple provision has been to secure extraordinary progress in all departments of the public school system. More rigorous examinations have provided the schools with a better class of teachers, and the general tendency is eminently progressive and wholesome.

A careful and candid examination of the public school system of Michigan will justify the following conclusions:

(1.) The University, the head of the system, in its general organization and in its actual administration, is worthy of admiration. In its literary department and in its professional and technological schools, it offers unexcelled advantages for general and special culture; its principal chairs are occupied by industrious and eminent scholars; and the general influence which is exerted on the lower schools of the system is wholesome in the extreme.

(2.) The city and village graded schools, usually culminating in a high school, which constitutes the middle element of the system, are generously supported by the public, are admirably organized and taught, and together form a characteristic and most valuable feature of our public school system. They enjoy the advantages of systematic and enlightened supervision and, in general, their affairs are administered with prudent economy. These schools exhibit all the evidences of a normal growth, and, if their progress be not checked by unforeseen misfortunes, they will become a most beneficent agency for the general culture of our people.

(3.) Our country schools are suffering from the want of intelligent and efficient supervision. The funds for their support are ample, and the houses for their accommodation are, in general, comfortable, and often elegant. Many of these schools are weakened by the withdrawal of their better pupils to village or city schools; and the average grade of teaching is low.

Many of our graded schools were formed by the union of several district schools; and this concentration of numbers, resources, and interests, in connection with the classification of pupils thus made possible, has given these organizations their peculiar efficiency and strength. There is no reason, in the nature of things, why the schools of each township might not be thus united, graded, compactly organized, and made subject to efficient supervision.

(4.) Supplementary to our school system proper are our charitable schools for the unfortunate of almost every class, the destitute, the insane, the blind, the deaf and dumb. Like a good parent, the State is a benefactor to all her children without discrimination, to male and female, to rich and poor, to the fortunate and the unfortunate.

(5.) In the main the organization of our system of public instruction is sound. Its faults are chiefly faults of administration which can be cured by simple means whenever we are willing to confess that a system which has been so generally and, in many respects, so justly lauded, has some real imperfections.

(6.) There is need of giving an eminently practical direction to our popular education, not practical in the sense of teaching handicrafts, trades, and professions, but in that of communicating the knowledge which is of immediate and constant use in the practical affairs of life. The literary and scientific elements in education should be pursued in their just proportions; and to effect this symmetry, something must be taken from the first, and something added to the second.

(7.) Our system of normal instruction is inadequate, because, in fact, it makes no provision for the cultivation of educational science, and furnishes only meager facilities for that lower degree of professional training which gives fitness for subordinate positions.

In closing, I wish to acknowledge my obligations to Hon. Daniel B. Briggs, Hon. Horace S. Tarbell, and to Superintendents Perry, Jones, George, and Daniels, for valuable assistance rendered me during the exhibition.

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In the preparation of this report I have derived material assistance from Professor W. H. Payne of Adrian, who has not only served as my amanuensis, but has elaborated certain topics upon which his large experience in the management of public schools has given him correct information. This work and the preparation of a treatise on practical teaching have been carried on *pari passu*, a process which has made inevitable certain similarities of thought and expression.

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